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Product Definition, Product Information, and Market Power: Kodak in Perspective

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PRODUCT DEFINITION, PRODUCT INFORMATION, AND MARKET POWER: *KODAK* IN PERSPECTIVE

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In Eastman Kodak Co. v. Image Technical Services, Inc., *the United States Supreme Court held that market power sufficient to impose an illegal tying arrangement can, at least in theory, derive from buyers' uncertainty regarding a product's costs and quality. Although commentators disagree on the implications of the* Kodak *decision, all seem to agree that the opinion's emphasis on product information costs is a departure from previously accepted economic analysis of antitrust law.*

In this Article, Mark R. Patterson argues that the Kodak *decision is, in fact, economically reasonable, incorporating into antitrust law previously neglected economic teachings about the value of product information and its potential to create market power. Applying these teachings to the facts of* Kodak, *Professor Patterson suggests an analytical technique for measuring information-based market power, and discusses the implications of the inclusion of information costs as a part of an analysis of market power. Further, Mr. Patterson argues that* Kodak *is consistent with earlier Supreme Court decisions in which the Court condemned competitors' joint restrictions on market information.*

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I. INTRODUCTION

In 1992, the United States Supreme Court decided *Eastman Kodak Co. v. Image Technical Services, Inc.*,[1] in which it held that sellers can derive antitrust market power from uncertainty regarding their products' costs and quality.[2] Commentators' responses to *Kodak* have ranged from the apocalyptic[3] to the temperate,[4] but all seem to agree

1. 112 S. Ct. 2072 (1992).

2. The facts and reasoning of *Kodak* are discussed in part II, *infra,* and the case's treatment of the market power issue is discussed *infra* in the text accompanying notes 57-60. The view taken in this Article of the antitrust significance of imperfect information is somewhat different from that which appears in *Kodak. See infra* notes 61-70 and accompanying text.

3. *See, e.g.,* Michael S. Jacobs, *Market Power Through Imperfect Information: The Staggering Implications of* Eastman Kodak Co. v. Image Technical Services *and a Modest Proposal for Limiting Them,* 52 MD. L. REV. 336, 373 (1993) (describing *Kodak* as a "disaster"); Charles F. Rule, *Back to the Dark Ages of Antitrust,* WALL ST. J., June 17, 1992, at A17.

4. *See, e.g.,* PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1709.2 (Supp. 1993); Warren S. Grimes, *Antitrust Tie-in Analysis After* Kodak*: Understanding the Role of Market Imperfections,* 62 ANTITRUST L.J. 263 (1994); George A. Hay, *Is the Glass Half-Empty or Half-Full?: Reflections on the* Kodak *Case,* 62 ANTITRUST L.J. 177 (1993); Herbert Hovenkamp, *Market Power in Aftermarkets: Antitrust Policy and the* Kodak *Case,* 40 UCLA L. REV. 1447 (1993); Benjamin Klein, *Market Power in Antitrust: Economic Analysis after* Kodak, 3 SUP. CT. ECON. REV. 43 (1993).

that the opinion, with its emphasis on product information, is a significant departure from prior doctrine.[5] Many claim that in *Kodak* the Court left behind the firm ground of economic analysis espoused by the Chicago School[6] for uncharted waters of *ad hoc* speculation limited only by the creativity of plaintiffs' lawyers.[7] Several commentators therefore contend that antitrust law will best be served if the lower courts confine *Kodak* narrowly to its facts in an effort to minimize its effect.[8]

This Article argues that *Kodak* did not abandon economic analysis, but actually—some might say finally—incorporated into antitrust law a body of economic teachings on product information that the Court had previously neglected.[9] The economic literature strongly supports *Kodak*'s implicit[10] view that when obtaining information re-

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5. *See, e.g.,* Jacobs, *supra* note 3, at 336 ("In [*Kodak*], the United States Supreme Court quietly revolutionized antitrust jurisprudence."). The novelty of *Kodak* has been a central topic in at least two recent seminars, *New Directions in Antitrust Law after* Kodak *and* Ticor: *Market Definition, Summary Judgment, Economic Theory, and State Action,* sponsored by ALI-ABA, Philadelphia, Pa., Jan. 21-22, 1993, and *Post-Chicago Economics: New Theories—New Cases?,* sponsored by the U.S. Department of Justice, the Federal Trade Commission, the ABA Antitrust Section, and Georgetown University Law Center, Washington, D.C., May 26-27, 1994.

6. Lawrence T. Festa, III, Comment, Eastman Kodak Co. v. Image Technical Services, Inc.: *The Decline and Fall of the Chicago Empire?,* 68 NOTRE DAME L. REV. 619, 620 (1993) ("[T]he economic analysis at the heart of [Chicago School jurisprudence] took a back seat to a moderate tone of antitrust theory." (footnote omitted)); Rule, *supra* note 3, at A17 (stating that "the real threat to consumers . . . comes from [*Kodak*'s] apparent downgrading of economic analysis"); *The Supreme Court, 1991 Term—Leading Cases,* 106 HARV. L. REV. 163, 328 (1992) [hereinafter *Leading Cases*] (describing the Court in *Kodak* as "refusing to adhere to the views of the Chicago School"). For a general outline of the tenets of the Chicago School, see Richard A. Posner, *The Chicago School of Antitrust Analysis,* 127 U. PA. L. REV. 925 (1979). *But see infra* note 12 (citing sources that contend the Court in *Kodak* did not abandon economic analysis).

7. *Leading Cases, supra* note 6, at 334 ("Kodak can be read as . . . implying that a triable issue on market power in derivative markets is always present whenever plaintiffs present some evidence of nontrivial informational imperfections and switching costs."); Jacobs, *supra* note 3, at 368 ("Firms seeking to shield themselves from the *Kodak* holding . . . have no effective form of self-defense.").

8. Jacobs, *supra* note 3, at 373 ("If the staggering implications of *Kodak* are to be contained, lower courts must avail themselves of the few doctrinal loopholes that it leaves open."); Festa, *supra* note 6, at 672 ("For reasons discussed previously . . . a broad interpretation [of *Kodak*] would be inappropriate."); *Leading Cases, supra* note 6, at 337 ("Thus, in order to prevent the Court's language in *Kodak* from taking on 'a life of its own, quite apart from the circumstances, facts, or reasoning, behind it,' lower courts should construe *Kodak* narrowly . . . ." (quoting Phillip Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles,* 58 ANTITRUST L.J. 841, 847 (1990))).

9. The *Kodak* Court explicitly cited some of this economic literature. *See infra* note 89 and accompanying text; *see also infra* part III (discussing the literature in some detail).

10. Because of the posture in which the case came to it, the Court in *Kodak* did not explicitly state that information costs can produce market power. *See infra* text accompa-

garding products in a particular market is difficult (i.e., costly) for buyers, sellers in that market have the power to impose higher prices.[11] In its reliance on this economic principle, the Court in *Kodak* continued to apply economic analysis,[12] and its departure from the Chicago School's approach comported with more recent advances in economic theory.[13]

Moreover, the *Kodak* decision is broadly consistent with the Supreme Court's antitrust decisions in other contexts. The Court has previously recognized, and emphasized, the importance of market information in cases in which competitors joined together to impose direct restrictions on that information. In *National Society of Professional Engineers v. United States*,[14] for example, the Court held impermissible "on its face" a professional society's rule that forbade its members from providing price information until buyers had tentatively agreed to purchase the members' services.[15] Similarly, in *FTC v. Indiana Federation of Dentists*,[16] the Court concluded that an antitrust violation was established as a matter of law by the refusal of an organization of dentists to provide x-rays to insurers for use in evaluating the dentists' work.[17] The Court based its decisions in these cases, as in *Kodak*, on the anticompetitive effects that the unavailability of information has on the functioning of markets.[18] Hence, *Kodak* can be read as a logical extension of the rationale of *Professional Engineers* and *Indiana Federation of Dentists* to a different, but analogous, context.[19]

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nying notes 29-46. That conclusion, however, follows from the Court's reasoning under the usual definition of market power. *See infra* text accompanying notes 61-65.

11. *See infra* part III.

12. *See* Hay, *supra* note 4, at 184 ("[T]he [*Kodak*] opinion can hardly be described as a rejection of the importance of economic analysis in antitrust. A very important factor in the Court's rejection of Kodak's claim was an economic analysis of consumer decision making in a world with costly information."); Gordon B. Spivack & Carolyn T. Ellis, Kodak: *Enlightened Antitrust Analysis and Traditional Tying Law*, 62 ANTITRUST L.J. 203, 206 (1993) ("The Court's rejection of economic presumptions to decide cases, however, does not signal a rejection of economic learning. Indeed, the Court relied on economic theory to define the scope of its factual analysis.").

13. *Compare* Posner, *supra* note 6, at 926-28 (describing the Chicago School as applying price theory) *with* Richard R. Nelson, *Comments on a Paper by Posner*, 127 U. PA. L. REV. 949, 950-51 (1979) (arguing that the Chicago School neglected recent price-theory work on such issues as information costs).

14. 435 U.S. 679 (1978).

15. *Id.* at 683, 693. *See also infra* notes 189-93 and accompanying text.

16. 476 U.S. 447 (1986).

17. *Id.* at 465-66. *See also infra* notes 194-97 and accompanying text.

18. *See infra* text accompanying notes 198-201.

19. The Court in *Kodak* did not describe Kodak's actions as analogous to those of the defendants in *Professional Engineers* and *Indiana Federation of Dentists.* Direct horizontal

Kodak is thus a step toward providing a more economically supportable and judicially consistent antitrust treatment of information. The opinion does not make entirely clear, however, either the decision's economic foundation or its relationship with prior cases. No doubt because the Court in *Kodak* was reviewing a summary judgment decision reached after very limited discovery,[20] it discussed information restrictions only at a very general level, and provided little specific indication of when such restrictions should be treated as of antitrust significance.[21] Therefore an analysis is needed to identify those particular information gaps that threaten the competitive process; as Justice Scalia observed in his *Kodak* dissent, "gaps in the availability and quality of consumer information[ ] pervade real-world markets."[22]

This Article attempts both to outline the economic support for the *Kodak* opinion and to provide a more detailed analysis of the issues it raises. The remainder of the Article is divided into five parts. Part II discusses the facts of *Kodak* and the opinion's approach to information-cost issues. Part III provides a summary of the economic literature on information costs, with particular reference to the sorts of problems present in *Kodak* and similar cases. Part IV applies these economic principles to the facts of *Kodak* in order to describe how information-based market power can be measured, and discusses some more general implications of the market power issue. Part V applies the Article's information-cost analysis to several different types of cases in which similar information-related claims have been raised, and explains that the analysis here is consistent with the prior decisions in those cases. Part VI concludes with some final observations.

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restrictions on market information, however, have much in common with vertical restraints that indirectly impose information costs. *See infra* note 201 and accompanying text.

20. The district court allowed the plaintiffs to take six depositions and to file one set of interrogatories and one set of requests for production of documents before granting summary judgment for Kodak. *Kodak*, 112 S. Ct. at 2078.

21. The same is true even of much of the commentary that is supportive of the *Kodak* decision. For example, Professor Grimes provides an interesting scheme for categorizing cases in terms of both market share and, following *Kodak*, market imperfections. *See* Grimes, *supra* note 4, at 292-96. However, he provides no means of measuring information-based market effects, stating only that a plaintiff can make a prima facie case by showing that "significant market imperfections are present" and are likely to be exploited. *Id.* at 296. Although Professor Grimes's classification of market imperfections as "low" or "high" may be sufficient for his comparative examination of past tying cases, it is not sufficiently specific for litigation, particularly litigation that can result in treble damages.

22. *Kodak*, 112 S. Ct. at 2097 (Scalia, J., dissenting).

II. KODAK

The plaintiffs in *Kodak* were eighteen providers of maintenance and repair services for Kodak copiers and related machines.[23] These independent service organizations (ISOs) competed with Kodak in providing service for its equipment.[24] A few years after the ISOs entered the service market, Kodak discontinued[25] its earlier policy of selling parts to ISOs and began to sell parts only to those owners of its equipment who either purchased service from Kodak or performed it themselves.[26] In other words, Kodak would not sell parts to ISOs or to Kodak equipment owners who used ISOs.[27] The ISOs, unable to obtain Kodak parts themselves or through their customers, lost business, and some were forced to close.[28]

The ISOs brought suit to challenge Kodak's parts policy. Their claim, as interpreted by the Supreme Court,[29] alleged that the manufacturer "unlawfully tied the sale of service for Kodak machines to the

23. *Id.* at 2076-77. The specific machines involved were high-volume photocopiers and micrographic equipment, used to capture and retrieve documents from microfilm. *Id.* at 2077 & n.1.

24. *Id.* at 2076-77.

25. The Court stated that Kodak changed its policy for both copiers and micrographic equipment. *Id.* at 2077. However, Kodak contended that the restrictive policy had always been in place for copiers. Petitioner's Brief on the Merits at 6 n.2, Eastman Kodak Co. v. Image Technical Servs., Inc., 112 S. Ct. 2072 (1992) (No. 90-1029).

26. *Kodak*, 112 S. Ct. at 2077. Kodak also entered into agreements with its outside parts manufacturers to sell parts only to Kodak. *Id.* at 2078.

27. Whether Kodak would sell parts to ISOs if those ISOs owned Kodak equipment is unclear. An ISO that owned Kodak equipment and serviced the equipment itself presumably would have fit within Kodak's classification of acceptable parts buyers.

28. *Kodak*, 112 S. Ct. at 2078.

29. The district court had adopted a distinctly different interpretation, stating that the ISOs' allegations were that Kodak had violated the antitrust laws "by restricting the sale of replacement parts to direct Kodak equipment customers and by refusing to sell service contracts on used equipment unless it is first inspected and brought up to standard by Kodak." Image Technical Servs., Inc. v. Eastman Kodak Co., 1989-1 Trade Cas. (CCH) ¶ 68,402, at 60,211 (N.D. Cal. 1988), *rev'd*, 903 F.2d 612 (9th Cir. 1990), *aff'd*, 112 S. Ct. 2072 (1992). As the district court saw these claims, neither described a tie. The court said that a Kodak customer "can buy parts if he simply owns Kodak equipment," and that he "can buy a Kodak maintenance agreement so long as his equipment qualifies." 1989-1 Trade Cas. (CCH) at 60,212.

The first of these points was apparently a straightforward misreading of the ISOs' claims. According to the court of appeals, a customer could not gain access to Kodak parts simply by owning Kodak equipment: "Kodak will not sell replacement parts for its equipment to Kodak equipment owners unless they agree not to use ISOs." Image Technical Servs., Inc. v. Eastman Kodak Co., 903 F.2d 612, 614 (9th Cir. 1990), *aff'd*, 112 S. Ct. 2072 (1992). A seller's requirement that a buyer, to purchase the seller's product, must forgo purchasing a second product from the seller's competitors is just as much a tie as a requirement that the buyer purchase the second product from the seller. *See Kodak*, 112 S. Ct. at 2079 ("A tying arrangement is 'an agreement by a party to sell one product but only on the condition that the buyer also purchases a different (or tied) product, or at least agrees that sale of parts, in violation of Section 1 of the Sherman Act."[30] The nature of an illegal tie is outlined in the following passage from an earlier Supreme Court case:

> [T]he essential characteristic of an invalid tying arrangement lies in the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms. When

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he will not purchase that product from any other supplier.' " (quoting Northern Pac. Ry. Co. v. United States, 356 U.S. 1, 5-6 (1958) (footnote omitted))).

The district court's treatment of the second allegation was also questionable. Judge Schwarzer described Kodak's policy as an exercise of "[t]he right of a manufacturer unilaterally to select its customers and to refuse to sell to others." *Image Technical Servs.*, 1989-1 Trade Cases (CCH) at 60,212. A unilateral refusal to deal is generally permissible under the antitrust laws. *See, e.g.*, Monsanto Co. v. Spray-Rite Serv. Corp., 465 U.S. 752, 761 (1984) ("A manufacturer of course generally has a right to deal, or refuse to deal, with whomever it likes, as long as it does so independently."). If Judge Schwarzer's interpretation was correct, however, many ties would be removed from antitrust scrutiny, because they could be redefined as sellers' unilateral refusals to deal with particular buyers. For example, if it were alleged that a seller required the purchase of tied product *B* before it would allow the purchase of tying product *A*, one could reinterpret the arrangement as one in which the seller would sell *A* only to owners of *B*. However, if the buyer agreed to purchase *B* in order to obtain *A*, the arrangement would be a tie. That was the case in *Kodak*. As even Judge Schwarzer said, a buyer could purchase a Kodak maintenance agreement "so long as his equipment qualifie[d]," *Image Technical Servs.*, 1989-1 Trade Cases (CCH) at 60,212, but that qualification required that the equipment be "brought up to standard by Kodak." *Id.* at 60,211. The requirement that the buyer, in order to purchase the maintenance agreement, make the additional purchase of the Kodak services to bring the equipment "up to standard" is a classic tie. (It may be, of course, that for a product such as a maintenance agreement, it would not be unreasonable to require that the maintainer inspect and correct any initial equipment problems. That would not, however, change the fact that the arrangement was a tie; it would merely give the tie a procompetitive justification.) *Cf.* Data Gen. Corp. v. Grumman Sys. Support Corp., No. 93-1637, 1994 U.S. App. LEXIS 25459, at *113-14 (1st Cir. Sept. 14, 1994) (treating refusal to license computer software diagnostic to any but computer owners who serviced their own equipment as unilateral refusal to deal).

In any event, the district court's approach was not the one taken by the court of appeals and the Supreme Court. The court of appeals noted the ISOs' contention that the district court had "misconstrued" their theory, which was that "Kodak ha[d] tied parts to service, not equipment to parts or parts to equipment." *Image Technical Servs.*, 903 F.2d at 615. It was this alleged parts-service tie on which the court of appeals and the Supreme Court focused. *See Kodak*, 112 S. Ct. at 2076; *Image Technical Servs.*, 903 F.2d at 615.

30. *Kodak*, 112 S. Ct. at 2078. Section 1 of the Sherman Act is codified as amended at 15 U.S.C. § 1 (Supp. V 1993); it declares illegal "[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce," *id.*, though it has been interpreted to forbid only those restraints of trade that are not reasonable. *See* Board of Trade v. United States, 246 U.S. 231, 239 (1918). The ISOs also brought a claim under Sherman Act § 2 (codified as amended at 15 U.S.C. § 2 (Supp. V 1993)), which makes illegal the acts of persons who "monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize . . . trade or commerce." The § 1 claim is the focus of this Article.

> such "forcing" is present, competition on the merits in the market for the tied item is restrained and the Sherman Act is violated.[31]

Thus, the ISOs' claim was that at least some owners of Kodak equipment would have preferred to purchase service for their equipment from the ISOs, but were "forced"[32] to purchase it from Kodak to gain access to Kodak parts.

In the market for its parts, Kodak had a virtual monopoly.[33] Therefore, to oppose the ISOs' tying claim Kodak had to explain why, despite its control over the supply of its own parts, it did not have power over consumers in the market for those parts. Kodak argued that it lacked such power because the parts market was constrained by conditions in the market for equipment,[34] a market in which the ISOs had not disputed that Kodak lacked power.[35] Specifically, Kodak contended (and the ISOs did not dispute[36]) that equipment buyers considered parts and service costs in deciding what brand of equipment to purchase.[37] As a result, Kodak claimed, it could not have exploited any power it had in the parts market because to do so would have

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31. Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 12 (1984).

32. The verb "force"—like its rough equivalent, "coerce," which is also sometimes applied in this context, *see, e.g.*, *Kodak*, 112 S. Ct. at 2094 (Scalia, J., dissenting)—is used loosely when applied to tying. Despite *Jefferson Parish*'s description of tying market power as involving a "forcing" of buyers, 466 U.S. at 12, neither "forcing" nor "coercion" can really be said to define the market power at issue; both terms merely restate the problem. The buyer of a tied product combination always makes the choice to purchase the products voluntarily, in the sense that the buyer prefers that choice to her other alternatives. The essence of a tying claim is the narrowing of the buyer's alternatives through the use of market power, so as to make unavailable some choice or choices that the buyer would have preferred. *See* W. David Slawson, *Excluding Competition Without Monopoly Power: The Use of Tying Arrangements to Exploit Market Failure*, 36 ANTITRUST BULL. 457, 478-79 (1991).

33. *Kodak*, 112 S. Ct. at 2096 (Scalia, J., dissenting) (stating that Kodak "held a near-monopoly share" of the Kodak parts market); *see also id.* at 2081 (noting the ISOs' assertion that "Kodak has control over the availability of parts it does not manufacture"); *Image Technical Servs.*, 903 F.2d at 616 ("[M]any Kodak parts are unique and available only from Kodak.").

34. *Kodak*, 112 S. Ct. at 2081-82; *Image Technical Servs.*, 903 F.2d at 616-17.

35. *Image Technical Servs.*, 903 F.2d at 616 n.3 ("[The ISOs] do not dispute Kodak's assertion that it lacks market power in the interbrand [equipment] markets.") The ISOs actually did attempt to contest this point before the Supreme Court. *See* Brief of Respondents at 16-18, 32-33, Eastman Kodak Co. v. Image Technical Servs., Inc., 112 S. Ct. 2072 (1992) (No. 90-1029). Because they had not done so earlier, however, the Supreme Court decided the case "based on the same premise as the Court of Appeals, namely, that competition exists in the equipment market." *Id.* at 2081 n.10.

36. *Image Technical Servs.*, 903 F.2d at 616.

37. *Id.*; *cf. Kodak*, 112 S. Ct. at 2097 (Scalia, J., dissenting) ("[A] rational consumer considering the purchase of Kodak equipment will inevitably factor into his purchasing decision the expected cost of aftermarket support.").

been to sacrifice sales in the equipment market.[38] In effect, Kodak argued that the tie, which the ISOs alleged forced the purchase of service as a condition of buying parts, could succeed only if it were the customers' desire for Kodak *equipment*, not parts, that made them purchase Kodak service.[39] Given its undisputed lack of power in the equipment market,[40] Kodak concluded that a tie based on that market could not be an antitrust violation.[41]

The Supreme Court, however, was unwilling to treat the equipment, parts, and service markets as so tightly linked. The issue of the interaction among the markets, as the Supreme Court framed it, was "whether a defendant's lack of market power in the primary equipment market precludes—as a matter of law—the possibility of market power in derivative [parts and service] aftermarkets."[42] Although the Court suggested that Kodak's argument might have been inadequate even if the factual claims on which it was based were true,[43] it devoted most of its attention to an analysis of the factual circumstances that could render the argument inaccurate. The Court focused on two effects that might have weakened the link between the equipment market and the parts and service aftermarkets. First, Kodak's equipment customers might not have had sufficient information to assess the costs of aftermarket parts and service, so that those costs might not have been reflected fully in their decisions to purchase the equipment.[44] Second, customers who already owned Kodak equipment

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38. *Kodak*, 112 S. Ct. at 2081-82; *Image Technical Servs.*, 903 F.2d at 616.

39. *See Kodak*, 112 S. Ct. at 2087 (interpreting Kodak's claim as one that equipment and service were "pure complements"); *see also infra* text accompanying notes 61-65.

40. *See supra* note 35.

41. Proof of market power is an element of a claim that a tie is an antitrust violation. *See* Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 13-14 (1984) ("[W]e have condemned tying arrangements when the seller has some special ability—usually called 'market power'—to force a purchaser to do something that he would not do in a competitive market."); *see also supra* text accompanying note 31 (describing the nature of an illegal tie).

42. *Kodak*, 112 S. Ct. at 2076.

43. The Court pointed out that Kodak's claim that consumers considered the price of parts and service when buying equipment was not decisive:

> Kodak's claim that charging more for service and parts would be "a short-run game" is based on the false dichotomy that there are only two prices that can be charged—a competitive price or a ruinous one. But there could easily be a middle, optimum price at which the increased revenues from the higher-priced sales of service and parts would more than compensate for the lower revenues from lost equipment sales. The fact that the equipment market imposes a restraint on prices in the aftermarkets by no means disproves the existence of power in those markets.

Id. at 2084 (citation to Kodak's brief omitted).

44. *Id.* at 2085-87; *see also infra* part II.A.

might have found it prohibitively expensive to switch to another brand due to their investments in the equipment.[45] The Court referred to these two obstacles to equipment market responsiveness as information costs and switching costs, respectively, and stated that "there is a question of fact whether information costs and switching costs foil the simple assumption that the equipment and service markets act as pure complements to one another."[46] The existence of this question of fact precluded summary judgment, and the Court affirmed the Ninth Circuit's remand of the case for trial.[47]

Critics of *Kodak* do not generally contest the Court's acceptance of the possibility of information and switching costs. Instead, they argue that such costs are unavoidable factors present in any similar market[48] and that they are not proper subjects of antitrust concern.[49] Justice Scalia's *Kodak* dissent typifies these criticisms. Justice Scalia observed that information costs "pervade real-world markets,"[50] and stated correctly that the Court had never before found such information costs sufficient to establish market power for antitrust purposes; indeed, the Court had rejected a similar argument in an earlier case.[51] With respect to switching costs, Justice Scalia acknowledged that the majority's view that such costs would enable Kodak to raise

45. *Kodak*, 112 S. Ct. at 2087; *see also infra* part II.B.

46. *Kodak*, 112 S. Ct. at 2087. Two products are complements if the purchase of one makes the purchase of the second more likely. *E.g.*, THE MIT DICTIONARY OF MODERN ECONOMICS 74 (David W. Pearce ed., 3d ed. 1986).

47. *Kodak*, 112 S. Ct. at 2092.

48. *See, e.g.*, Eleanor M. Fox, Eastman Kodak Company v. Image Technical Services, Inc.—*Information Failure as Soul or Hook?*, 62 ANTITRUST L.J. 759, 766 (1994) ("Small information failures or lags are garden variety disorders of economic life."); Jacobs, *supra* note 3, at 365 ("*Kodak*'s rationale suggests that in any competitive market—not just those for complex goods—substantial information gaps of many kinds can prevent consumers from making rational decisions . . . .").

49. *See, e.g.*, Fox, *supra* note 48, at 766 (arguing that if such claims were allowed, "[t]he law would lose its carefully honed limits"); Hovenkamp, *supra* note 4, at 1448 ("The realities of . . . obviously imperfect competition in markets for technically complex durable goods have led some courts to conclude that a firm can quite readily be a 'monopolist' in its own branded product or aftermarket services. But such holdings seem quite wrong as a general policy matter . . . ." (footnote omitted)).

50. *Kodak*, 112 S. Ct. at 2097 (Scalia, J., dissenting).

51. *Id.* at 2097-98 (Scalia, J., dissenting). Justice Scalia cites the following passage from Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984):

> The Court of Appeals . . . recognized that . . . a lack of adequate information renders consumers unable to evaluate the quality of the medical care provided by competing hospitals. While these factors may generate "market power" in some abstract sense, they do not generate the kind of market power that justifies condemnation of tying.

Id. at 27 (citation and footnotes omitted). These comments from *Jefferson Parish*, and the reasons why they do not apply to *Kodak*, are discussed below. *See infra* part IV.B.1.

aftermarket prices "is *necessarily* true for 'every maker of unique parts for its own product.' "[52] He contended, however, that the power to raise prices in this manner was a result simply of the prior consumer investment in the product, and was not a result of market power in the antitrust sense.[53]

The majority and the dissent were both partly right. The majority's claim that information and switching costs have market-power implications is correct, but Justice Scalia's dismissal of each cost alone as a source of market power is also valid. This Article argues that the combination of *both* information and switching costs creates market power. A tie, such as Kodak's, that imposes information costs in a market where buyers' purchases expose them to switching costs can subject those buyers to above-market prices—that is, it can provide the seller with market power.[54] The manner in which information and switching costs might have interacted in this way in *Kodak* is discussed below.

A. *Information Costs*

The role played by information costs in *Kodak* was relatively straightforward. A potential purchaser of Kodak equipment seeking to determine the long-term costs of owning, operating, and maintaining that equipment would have required a great deal of difficult-to-obtain information. As the Court stated,

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52. *Kodak*, 112 S. Ct. at 2098 (Scalia, J., dissenting) (quoting AREEDA & HOVENKAMP, *supra* note 4, ¶ 525.1(b) (Supp. 1991).

53. *Id.* at 2098 (Scalia, J., dissenting). Justice Scalia did not explain this point further. *See infra* part V.C.1.

54. William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 937 (1981) ("The term 'market power' refers to the ability of a firm (or a group of firms, acting jointly) to raise price above the competitive level without losing so many sales so rapidly that the price increase is unprofitable and must be rescinded."); *see also* George A. Hay, *Market Power in Antitrust*, 60 ANTITRUST L.J. 807, 808 (1992) ("It has become traditional to think of the ability of a firm or group of firms to maintain prices above the competitive level, although the meaning of 'price' can easily be expanded to take into account other forms of consumer injury such as inferior quality.").

In tying cases, market power is sometimes defined somewhat differently. For instance, in Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984), the Court defined it as the ability "to force a purchaser to do something that he would not do in a competitive market," *id.* at 14, and, more specifically, "to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms," *id.* at 12. The Court made clear, however, that tying market power is also the power to raise price, referring to the alternatives of "exploitation of market power by merely enhancing the price of the tying product, on the one hand, and by attempting to impose restraints on competition in the market for a tied product, on the other." *Id.* at 14; *see also supra* notes 31-32 and accompanying text (describing the ISOs' claim that owners of Kodak equipment were "forced" to purchase service from Kodak).

> [t]he necessary information would [have] include[d] data on price, quality, and availability of products needed to operate, upgrade, or enhance the initial equipment, as well as service and repair costs, including estimates of breakdown frequency, nature of repairs, price of service and parts, length of "down-time" and losses incurred from down-time.[55]

Some of this information would have been unavailable at any cost, and acquisition of even the available information would have required the expenditure of considerable effort and expense.[56] It is that expense that constituted a Kodak equipment buyer's information cost.

The Court's treatment of the legal significance of the information costs in *Kodak* responded specifically to the parties' arguments. Recall that Kodak's contention was that it could not impose onerous terms for service of its equipment because to do so would cause consumers not to buy its equipment.[57] The Supreme Court's response was that information costs could prevent such a consumer reaction: "For the service-market price to affect equipment demand, consumers must inform themselves of the total cost of the 'package'—equipment, service and parts—at the time of purchase; that is, consumers must engage in accurate lifecycle pricing."[58] Because there was a factual question as to whether buyers could accomplish such lifecycle pricing,[59] the Court rejected Kodak's argument that "lack of power in the equipment market necessarily precludes power in the aftermarkets."[60]

Although the Court's view is accurate in a sense, a step back from the specific arguments and admissions of *Kodak*[61] reveals a simpler, more useful interpretation of information costs. The tie of Kodak service to Kodak parts, and the need for Kodak parts to operate Kodak equipment, meant that the purchasing decisions for these three components were not independent. Instead, the buyer of Kodak equipment actually bought a package of Kodak equipment, parts, and service.[62] Therefore, the buyer's uncertainty regarding the equip-

55. *Kodak*, 112 S. Ct. at 2085 (footnote omitted).

56. *Id.* at 2086 ("Much of this [lifecycle pricing] information is difficult—some of it impossible—to acquire at the time of purchase.").

57. *See supra* text accompanying notes 33-41.

58. *Kodak*, 112 S. Ct. at 2085.

59. *See supra* text accompanying notes 42-46.

60. *Kodak*, 112 S. Ct. at 2083.

61. As discussed above, the Court was responding specifically to Kodak's argument claiming that parts and service price increases would cause lost sales in the equipment market, *see supra* text accompanying note 57, and it was doing so in the context of the ISOs' admission in the court of appeals that Kodak had no power in the equipment market, *see supra* note 35 and accompanying text.

62. *See supra* text accompanying note 58; *see also Kodak*, 112 S. Ct. at 2095 (Scalia, J., dissenting) ("The record below is consistent—in large part—with just this sort of bundling

ment's future parts and service costs was uncertainty regarding the overall cost of the equipment-and-parts-and-service product. The product was in this view similar to any other product—such as, for example, a variable-rate mortgage[63]—for which only part of the cost is known at the time of purchase. It is a well-accepted proposition that when there is this sort of uncertainty regarding the cost of a product, the seller of that product has market power. The economic literature on this subject is discussed in Part III of this Article, but for now it is sufficient to offer the intuitive notion that when there is uncertainty regarding a product's cost, consumers will be less responsive to an increase (or, for that matter, a decrease) in the cost, so that sellers of the product will have the power to raise its price—the usual definition of market power.[64] This definition is borne out by the Court's statement that information costs "could create a less responsive connection between service and parts prices and equipment sales."[65] Because parts and service were simply components of the overall equipment package, the Court's statement implied that increases in the price of the package did not lead to corresponding decreases in its sales.

Another way to look at the information-cost issue is to consider whether uncertainty regarding the cost of Kodak equipment "coerced" the buyer to accept a tie, as is required to find an illegal tie.[66] As Justice Scalia stated, if the product is equipment-and-parts-and-service, the proper inquiry is "whether Kodak's *market power* in the equipment market effectively forced consumers to purchase Kodak . . . machines subject to the company's restrictive aftermarket practices."[67] In fact, uncertainty can create market power that has just

of equipment on the one hand, with parts and service on the other."). In a sense, it might be more accurate to treat the purchase as one of equipment and an obligation/requirement to purchase parts and service. This perspective would make more clear that the purchase price the buyer pays for the equipment does not include the prices for parts and service (in the absence of a service agreement), but that the buyer incurs a liability for future costs of parts and service.

63. A variable-rate mortgage, however, does not present an information-based market-power problem because the costs of switching to an alternative mortgage (probably just the closing costs on the new mortgage) are low relative to the overall cost of the original mortgage. *See generally infra* text accompanying notes 120-23 (switching costs limit market power); text accompanying note 159 (switching-cost market power threshold requirement); *see also infra* part V.B (discussing other circumstances in which switching costs are absent).

64. *See supra* note 54 and accompanying text; *infra* notes 134-36 and accompanying text.

65. *Kodak*, 112 S. Ct. at 2085.

66. *See supra* notes 32, 54.

67. *Kodak*, 112 S. Ct. at 2095 (Scalia, J., dissenting) (emphasis in original). Justice Scalia refers only to equipment, rather than to the equipment-and-parts-and-service package, but if the relevant product is the entire package, power over that entire package must

such an effect. Only if all of the information regarding equipment, parts, and service costs was readily and cheaply available could a Kodak equipment buyer willingly have accepted the tie. That is so because only then would the customer have been aware, at the time of her equipment purchase, of the costs that Kodak's policy would impose on her.[68] A customer who accepted the policy in those circumstances would therefore have done so willingly (in the sense that she knowingly would have accepted Kodak's equipment-and-parts-and-service package rather than that of another manufacturer),[69] and the necessary coercive element of a tie would have been absent.[70] But if the customer were unaware of the full extent of her future costs at the time she made the purchase, her later payment of those costs could be unwilling, or "coerced," if she were not later free to switch to an alternative brand of equipment. The buyer's inability to switch is essential, though; the coercion would have depended upon the existence of switching costs, as discussed in the next section.

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be considered. *See* Hovenkamp, *supra* note 4, at 1456-57 (using overall equipment costs over life of equipment as basis for market power test).

68. The uncertainty could also be reduced if service providers took on the risk of the uncertainty. For example, if service providers all sold lifetime service contracts, and a buyer chose that option, there would be no uncertainty, at least as to the price of parts and service. *See* Sanford J. Grossman, *The Informational Role of Warranties and Private Disclosure About Product Quality*, 24 J.L. & ECON. 461, 470-77 (1981); Michael Spence, *Consumer Misperceptions, Product Failure and Producer Liability*, 44 REV. ECON. STUD. 561, 569-71 (1977). Uncertainty would still remain, however, regarding such items as the frequency with which repair would be necessary and how long the service provider would take to respond and effect necessary repairs.

69. One must be careful in concluding that a tie is willingly accepted, however. I believe that Professors Areeda and Hovenkamp err in this respect in their latest antitrust treatise supplement. *See* AREEDA & HOVENKAMP, *supra* note 4, ¶ 1709.2 (discussing *Kodak*). Their discussion focuses on franchise agreements, which are discussed *infra* in the text accompanying notes 278-86. They say that a franchisee who is required by her franchisor to accept high prices for franchise supplies as part of a contract to renew the franchise is subject to the coercive power of the switching costs that she would lose if she abandoned the franchise. *Id.* ¶ 1709.2(c)(2)(C). But Areeda and Hovenkamp distinguish that situation from one in which a franchisee who initially agreed to buy supplies from the franchisor is later confronted with a considerable increase in the prices for those supplies. *Id.* ¶ 1709.2c2(B). In the latter case, Areeda and Hovenkamp say, the franchisee would be aware of the potential of the price increases at the time she entered into the initial contract, so the increases would provide no coercive power. *Id.* This distinction is untenable. In the first example, where it was the terms of the renewal contract that were burdensome, the franchisee knew at the time of entering into the first contract that renewal might require different terms, just as in the second example the franchisee knew that prices might be increased. In both circumstances, the franchisee would be subject to the coercive power of switching costs—though, as argued *infra* part V.C.1, I do not think that either of these situations presents a market information problem similar to the one in *Kodak*.

70. Recall that Kodak, in the absence of information costs, did not have market power in the equipment market, *see supra* note 35 and accompanying text, so that the customer's choice to purchase Kodak equipment presumably would 12 have been free.

B. Switching Costs

Switching costs were described in *Kodak* as the investments that a buyer sacrifices in switching from one product to another.[71] In *Kodak*, these costs included both the portion of the initial investment in equipment that could not be recovered and ancillary expenses such as training and documentation.[72] Switching costs are not unusual; as Justice Scalia pointed out, every purchaser of a product that requires some capital investment incurs them.[73] Whenever such a product still has useful life, that remaining life will have value that will be costly to sacrifice in switching to a different product. Only when the entire value of the product has been consumed, or in those rare circumstances in which its resale value fully reflects its value to its owner, will the cost of switching from it be zero.

The majority in *Kodak* stated that a buyer who had invested in an expensive durable good, and had thereby assumed the burden of switching costs in the event of a change to an alternative product, would "tolerate some level of service-price increases before changing equipment brands."[74] The dissent did not disagree with this characterization of the effects of switching costs, but it did not find them of antitrust significance.[75] Justice Scalia listed a number of circumstances in which such switching costs arise, and stated that "[l]everage, in the form of *circumstantial* power, plays a role in each of these relationships; but in none of them is the leverage attributable to the dominant party's *market* power in any relevant sense."[76] He did not, however, offer any means of distinguishing "circumstantial" power from market power. The distinction derives from a buyer's knowing and willing acceptance of a locked-in position.[77]

If at the time of a buyer's original purchase she is, or should be, aware of the switching costs that she would incur to change products,

71. *See Kodak*, 112 S. Ct. at 2087 (using "switching costs" to refer to "the costs to current owners of switching to a different product").

72. *See id.* (referring to evidence that "the heavy initial outlay for Kodak equipment, combined with the required support material that works only with Kodak equipment, makes switching costs very high for existing Kodak customers").

73. *Id.* at 2098-99 (Scalia, J., dissenting) (describing a variety of products and circumstances in which a buyer would incur costs to switch to an alternative). For a discussion of Justice Scalia's examples, see *infra* notes 263-65 and accompanying text.

74. *Kodak*, 112 S. Ct. at 2087.

75. *Id.* at 2098-99 (Scalia, J., dissenting).

76. *Id.* at 2098 (Scalia, J., dissenting). Justice Scalia's "circumstantial" power is described *infra* part V.C.1.

77. Because in Justice Scalia's examples such knowing acceptance of lock-in was present, but in *Kodak* was not, the distinction drawn here renders his point inapplicable to *Kodak*. *See infra* part V.C.1.

she presumably accepts the possibility of those switching costs as a part of the sale.[78] To make this apparent, consider the buyer's decision-making process in deciding whether, and on what terms, to purchase an expensive durable good. The buyer, if she chose, could bargain for the privilege of returning the product at a given time for its unused value to her.[79] The buyer would then incur no switching costs if she later decided to change to a different product.[80] This is not an implausible scenario; it basically describes a leasing or rental arrangement. If a knowing buyer chooses not to bargain for such an arrangement, and instead chooses to make the purchase and incur switching costs, she makes that choice not as a result of any market power of the seller, but as a result of her preference for other terms that she perceives as more valuable.[81]

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78. *See Kodak*, 112 S. Ct. at 2085-86 n.20 (noting that a consumer pricing equipment would need "residual value information such as the longevity of product use and its potential resale or trade-in value").

79. Professor Klein has suggested that contractual protections could also be used to eliminate or reduce information cost problems. *See* Klein, *supra* note 4, at 51. But the difficulty with information costs is that, in some cases, neither the buyer nor the seller has the relevant information, so that neither can contract for those costs. *See id.* at 49 ("Even Kodak does not know at the time it sells equipment what it will be charging for parts and aftermarket services over the complete life of the equipment."); *see also id.* at 51 ("Fixing aftermarket prices far in advance may be difficult because one does not know what changes in technology and relative prices will occur over time."). Professor Klein suggests that this problem could be avoided by using a "most favored purchaser" clause, whereby long-time owners of equipment could be charged no more than recent purchasers of the equipment. *Id.* However, that is at best only a partial solution to the problem, because the difficulty is as likely to be unexpected differences between the manufacturer and its competitors as between the manufacturer's treatment of old and new customers. *See infra* part IV.A.

80. The buyer may also have incurred additional costs, such as the cost of training its personnel to use the new product. Those costs are typically not part of the product's purchase price, but they are (or should be) known at the time of purchase, so they are also costs that the buyer accepts, and he could bargain for their reimbursement.

A similar analysis applies to the exploitation of a buyer "locked-in" by unexpected increases in aftermarket prices. *See Kodak*, 112 S. Ct. at 2087; Richard Craswell, *Tying Requirements in Competitive Markets: The Consumer Protection Issues*, 62 B.U. L. REV. 661, 674-75 (1982). At the time of the original equipment purchase, the buyer knows that she will be limited in her choice of aftermarket products. That is so because any later purchase of products or services to be used with the equipment must be compatible with it (so that even where the aftermarket products are available from more than one manufacturer, there will still be a limited number of sources from which to choose). Therefore, the buyer is aware that there will be an opportunity for the aftermarket producers to raise prices. She could therefore bargain with the original equipment seller to provide those products at a specified price, or to later compensate her for any higher price that she might have to pay. *Cf. supra* note 69 (discussing Areeda and Hovenkamp's view of analogous problems in franchise agreements).

81. Of course, the buyer *could* be forced to accept an undesired purchase arrangement, including switching costs, as a result of market power of the seller. But that market

This description approximates Justice Scalia's view of switching costs. As he wrote, because switching costs are incurred at the time of the initial equipment purchase, the *Kodak* majority's treatment of such costs as coercive "essentially repudiat[es]" the majority's assumption of "Kodak's lack of any power whatsoever in the interbrand market."[82] But whatever force Justice Scalia's criticism may have when applied to the majority opinion, it has none when applied to the analysis in this Article, because the present analysis *explicitly* repudiates the assumption that Kodak lacked interbrand market power. The analysis here does not thereby agree with Justice Scalia's views, though, because it also rejects the assumption on which his view of switching costs rests—that the buyer's knowing acceptance of the switching costs necessarily implies that those costs can have no coercive effect.

Consider again the facts of *Kodak*. Assume that a buyer purchases a piece of Kodak equipment with knowledge both of the costs of later switching to another brand of equipment and of a requirement that she use Kodak service. Assume further that the quality of service received from Kodak is much lower than expected. The buyer may then desire to switch from her Kodak equipment to some other brand, but be forced to remain with Kodak because of the high cost of switching. In this scenario, the coercive effect arises not from the switching costs—those were, as Justice Scalia says, known and accepted at the time of the initial purchase—but from the unexpectedly low service quality, of which the buyer was unaware because of information costs.[83]

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power would have to derive from some other source, not from the switching costs. In those circumstances, the switching costs would be a result of the market power, not a source of it.

82. *Kodak*, 112 S. Ct. at 2098 (Scalia, J., dissenting). The majority's view, as described *supra* in the text accompanying note 45, was that "a seller profitably could maintain supracompetitive prices in the aftermarket if the switching costs were high relative to the increase in service prices, and the number of locked-in customers were high relative to the number of new purchasers." *Id.* at 2087. Justice Scalia's objection is that the majority's "supracompetitive prices in the aftermarket" imply a "total 'system' price above competitive levels in the interbrand market," *id.* at 2098 (Scalia, J., dissenting), which could only be maintained if Kodak had market power. *See supra* note 54 (stating that market power is the ability to maintain supracompetitive prices). As discussed in the text, however, this analysis ignores the possibility that information costs could make the buyer unaware of the total system price until after her purchase had locked her into that price.

83. This analysis is analogous to that presented in recent work on the antitrust implications of penalties in long-term contracts. *See* Philippe Aghion & Patrick Bolton, *Contracts as a Barrier to Entry*, 77 AM. ECON. REV. 388 (1987); Joseph F. Brodley & Ching-to Albert Ma, *Contract Penalties, Monopolizing Strategies, and Antitrust Policy*, 45 STAN. L. REV. 1161 (1993). Brodley and Ma examine the effects of terms in contracts between suppliers and customers under which the customers are required to make payments to their original suppliers if they decide to switch to different ones. The payment penalties are shown to be

The switching costs in this scenario, rather than worsening the buyer's situation, actually represent the upper limit on the buyer's possible losses from unexpectedly poor service quality. No matter how much information the buyer lacks, no matter how much more costly is her purchase than expected, she can switch to an alternative product at any time, capping her future losses at the amount of her switching costs at that time.[84] The ultimate example of this principle is seen where switching costs are zero: Although information costs may exist, a buyer can costlessly switch to another product at any time to avoid suffering further from those costs.[85] In *Kodak*, of course, neither information nor switching costs were zero, so the buyers were subject to the market effects of those costs. The next part provides the background needed to evaluate those effects.

III. THE ECONOMICS OF INFORMATION

"[K]nowledge *is* power," as a seminal article on the economics of information emphatically restated.[86] In the case of market power, it is also accurate to say that a buyer's *lack* of knowledge is the seller's power. The economic literature shows that a lack of price or quality information in a market allows sellers to raise prices above the com-

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barriers to entry because they require new entrants to offer prices even lower than the competitive level to compensate customers for the switching penalties. *Id.* at 1167-72. However, in return for the customers' acceptance of terms that restrict the entry of new, lower-cost suppliers, the customers receive lower prices from their original suppliers. *See id.* at 1164.

The parallel to the present case is almost exact. Kodak's ties placed its equipment owners in a position from which they would have had to sacrifice switching costs to change to a different brand of equipment; those switching costs would have acted as a penalty. But Kodak's arrangement, as the penalty analysis suggests, may also have compensated buyers for their sacrifice of possible future gains by switching. The Court noted that Kodak itself said that "[a] pricing strategy based on lower equipment prices and higher aftermarket prices could enhance equipment sales" (though Kodak did not claim that it had actually adopted such a strategy). 112 S. Ct. at 2088 & n.26. Kodak's claim was that such a strategy could make it easier for a buyer to finance the initial equipment purchase, *id.* at 2088, but the contract-penalty analysis provides an alternative, less innocuous interpretation. Importantly, the penalty analysis, like the switching-cost analysis presented here, concludes that an antitrust problem is presented only in the presence of uncertainty: "[The original supplier's] bargaining strategy will succeed . . . only if entry is uncertain at the time the penalty contract is signed." Brodley & Ma, *supra*, at 1167.

84. *Cf.* Michael R. Darby & Edi Karni, *Free Competition and the Optimal Amount of Fraud*, 16 J.L. & ECON. 67, 71 (1973) ("In case of complete ignorance on the part of the consumer, the amount of fraud is limited only by the price differential between a new unit and the present one.").

85. This statement applies only to future information costs, because costs already incurred cannot be recovered.

86. George J. Stigler, *The Economics of Information*, 69 J. POL. ECON. 213, 213 (1961).

petitive level.[87] That is so even if the seller, as well as the buyer, lacks the information.[88] The Supreme Court in *Kodak* cited some of the literature on the economics of information in support of its argument that information costs could have enabled Kodak to raise prices in the parts and service markets.[89] However, the Court cited this material only to refute Kodak's argument that exploitation of the parts and service markets would be prevented by the possibility of lost sales in the equipment market.[90] As described above,[91] the role of market information is more fundamental. Uncertainty with regard to either the overall price or quality of a product[92] can create market power exploitable by the seller of that product.[93]

A. Search Costs

The *Kodak* Court referred to economics literature to support its discussion of the difficulty, or expense, of determining the true price

87. The usual definition of market power is the ability to raise prices above the competitive level. *See supra* note 54.

88. Indeed, it may be true only if the buyers at least believe that the seller lacks the relevant information. *See infra* note 100.

89. *See Kodak*, 112 S. Ct. at 2085 n.19 (citing Craswell, *supra* note 80; Howard Beales et al., *The Efficient Regulation of Consumer Information*, 24 J.L. & ECON. 491 (1981)); *see also Kodak*, 112 S. Ct. at 2087 n.22 (citing Steven Salop & Joseph Stiglitz, *Bargains and Ripoffs: A Model of Monopolistically Competitive Price Dispersion*, 44 REV. ECON. STUD. 493 (1977); Steve Salop, *Information and Monopolistic Competition*, 66 AM. ECON. REV.: PAPERS AND PROCEEDINGS OF THE EIGHTY-EIGHTH ANNUAL MEETING OF THE AMERICAN ECONOMIC ASSOCIATION 240 (1976); Stigler, *supra* note 86, at 213).

90. *See Kodak*, 112 S. Ct. at 2085-87.

91. *See supra* text accompanying notes 61-70.

92. Although the discussion below often refers only to price or quality, both characteristics generally can provide market power in much the same manner. One commentator notes that

> [a] consumer with less information (higher search costs) is also less aware of the existence of good substitutes for the noisy monopolist's product; thus, he would be willing to pay a higher price, *ceteris paribus*. For example, of two consumers who value nicotine equally, the one who is unaware that cigars also supply nicotine will be willing to pay more for cigarettes. It is in this manner that quality and price information gathering may be linked.

Steven Salop, *The Noisy Monopolist: Imperfect Information, Price Dispersion and Price Discrimination*, 44 REV. ECON. STUD. 393, 403 (1977).

93. A warning is appropriate here: "[T]he reader is cautioned that information economics is perhaps the most confusing branch of the dismal science. Because the demand for information is derived from the demand for products, failures in one market feed back on the other in a circular fashion." Beales et al., *supra* note 89, at 503. The circular nature of informational market effects makes exposition of those effects difficult. At times, therefore, the discussion below may seem to gloss over some of the information-product interactions, but those gaps should be filled in when these issues are discussed in the more concrete context of *Kodak* in part IV.A, *infra*.

that will be paid for a product.[94] The capacity of price uncertainty to create market power can be seen intuitively by considering a consumer attempting to decide whether she should purchase a given product. The consumer is more likely, all other things being equal, to make that purchase if she would have to incur additional costs to determine the prices of alternative products. It will only be worth her while to seek out a lower price if the cost of doing so is less than the savings that she expects to receive. Therefore, even when the price charged by a seller is higher than other prices in the market, if the price difference is sufficiently low in comparison with information costs in that market, the seller will be able to maintain the higher price.

This phenomenon was examined formally in an article by George Stigler, cited by the Court in *Kodak*.[95] Stigler concluded that a buyer's expected gain from a search for a lower price is equal to the quantity of the item that the buyer plans to purchase multiplied by the expected reduction in price as a result of the search.[96] The buyer should conduct the search if this expected gain is less than the cost of the search.[97] Although this analysis is enlightening, its practical value is lessened by its reliance on an assumption that the buyer, in deciding whether to search, already knows how much she can expect to save by the search. That is, the analysis assumes that the buyer knows the price distribution for the products that she is considering. A buyer seldom has such knowledge.[98] Stigler's model nevertheless has an im-

94. *See Kodak*, 112 S. Ct. at 2085 (discussing need for accurate lifecycle pricing); *see also id.* at 2087 (discussing possibility of price discrimination among buyers with different abilities to perform lifecycle pricing).

95. Stigler, *supra* note 86 (cited in *Kodak*, 112 S. Ct. at 2087 n.22).

96. *Id.* at 215.

97. *Id.* at 216.

98. One of the more "economic" articles in the legal literature attempts to remedy this failing of the Stigler analysis. *See* Alan Schwartz & Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 U. PA. L. REV. 630 (1979) [hereinafter Schwartz & Wilde, *Intervening in Markets*]; Louis L. Wilde & Alan Schwartz, *Equilibrium Comparison Shopping*, 46 REV. ECON. STUD. 543 (1979). In *Intervening in Markets*, Schwartz and Wilde use a model similar to the ones advanced in the economic literature, but adopt "more plausible assumptions with respect to how consumers search and what they know about the prices they face." Schwartz & Wilde, *Intervening in Markets*, *supra*, at 646. They assume that there are two groups of consumers: those who visit one store and those who visit more than one store. *Id.* at 648, 650. They also assume, however, that consumers will visit more stores if their potential gains (typically in price) are greater. *Id.* at 648. Although this assumption is no doubt plausible as a general matter, it assumes that consumers have at least some information regarding the price distribution, which is the very assumption that the authors sought to avoid. In a more recent article, the same authors no longer make this assumption and instead rely on intuitive justifications for the consumer shopping strategies their model uses. *See* Alan Schwartz & Louis L. Wilde,

portant implication in the present context. Because his analysis concludes that, at equilibrium, buyers' potential savings are proportional to their search costs, it implies that prices will be widely dispersed when search costs are high. Practically, this is a result of the fact that when search costs are high, sellers have little reason to price near their competition.[99] At the limit, if it were impossible for buyers to determine costs—that is, if search costs were infinite—there would also be no limit on price dispersion.

This problem of price dispersion as a result of high search costs is subject to manipulation by the seller. To the extent that the seller can define its product in such a way as to make it more difficult for consumers to determine its cost, the seller can create this type of market imperfection.[100] Kodak's tie of service to parts and equipment, I ar-

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Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Security Interests, 69 VA. L. REV. 1387, 1404-05 (1983) [hereinafter Schwartz & Wilde, *Imperfect Contract Information*]; *see also infra* note 102.

99. Stigler, *supra* note 86, at 220 ("Buyers accordingly cannot make the amount of investment in search that perfect correlation of prices would justify. The greater the instability of supply and/or demand conditions, therefore, the greater the dispersion of prices will be."). Moreover, price dispersion can be high not just among different sellers, but among different buyers from the same seller. If consumers have differing information costs, and if those with higher costs are willing to pay higher prices, then a seller can profitably sell at a higher price to those high-information-cost buyers. *See* Salop, *supra* note 92, at 403. For example, Kodak claimed that some large-volume buyers would have sufficient incentive to search out Kodak's price information. 112 S. Ct. at 2086-87.

100. Conversely, a seller who reduces search costs can reduce price dispersion. As Stigler points out, advertising can effectively provide information that would otherwise require a large amount of buyer search. Stigler, *supra* note 86, at 224 ("The effect of advertising prices, then, is equivalent to that of the introduction of a very large amount of search by a large portion of the potential buyers."). Kodak claimed that this would be an effective source of information in its case because its competitors would provide information to buyers. *Kodak*, 112 S. Ct. at 2086. However, there are at least two reasons why this might not have been the case. First, even if competing sellers could have provided needed information to buyers, they could have done so only at a cost to themselves. Providing the information would have been a cost for a competing seller, which would have raised its price, so the market power of Kodak would not have been eliminated, only lessened. *See* Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs To Achieve Power Over Price*, 96 YALE L.J. 209, 268-72 (1986). More fundamentally, though, a seller can only provide information it knows. Although Kodak's (non-tying) competitors could have provided some information regarding their own equipment, parts, and service prices, they, no less than buyers, would have found it difficult to determine Kodak's long-term service costs. Therefore, they would not have had the information that buyers needed. *Cf.* Stigler, *supra* note 86, at 219 ("One source of dispersion is simply the cost to dealers of ascertaining rivals' asking prices . . . .").

The inability of sellers themselves to obtain information is important in another respect. George Akerlof has shown that when a seller is known to have quality information and does not provide it to buyers, those buyers will rationally assume that the quality of the seller's goods is the lowest possible. George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488, 489-90 (1970). At the limit, buyers may be completely unwilling to buy a product. *Id.* at 491 (using used-car gue in this Article, was a definition of its product that had just such an effect.[101] The tie forced buyers considering Kodak equipment to elect one of the following alternatives: (1) incur the expense of estimating the costs of Kodak service (if possible) and comparing them with alternatives, or (2) purchase Kodak equipment, or some other brands, with incomplete information regarding service costs, thereby saving the costs of the search but subjecting the buyers to uncertain—perhaps supracompetitive—costs.[102] The higher the costs of searching,

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market as example). Sellers are therefore motivated to provide information regarding the quality of their products, if they have such information and can communicate it cost-effectively. *See generally* Grossman, *supra* note 68 (discussing role of warranties of product quality). *See also infra* notes 215-17 and accompanying text.

In real markets, of course, the quality information available to a seller will fall somewhere between perfect information and no information. The economic literature has as yet had little to say about these intermediate conditions, where the seller's incentives are unclear. One article has suggested that where consumers' information costs are high, sellers will themselves provide less information, even if they could do so at a cost lower than that at which buyers could acquire the information. Yoram Barzel, *Measurement Cost and the Organization of Markets*, 25 J.L. & ECON. 27, 30 (1982). The Supreme Court alluded to a similar phenomenon in *Kodak*, responding to Kodak's argument that its competitors would remedy any information deficiencies by observing that it could be in all the sellers' interests to withhold information. 112 S. Ct. at 2086 & n.21. *Kodak*'s reference was to competitors' unwillingness to search out and provide lifecycle cost information, but the principle applies in the same way to quality information.

101. Moreover, the potential for this sort of effect is exacerbated when the product is one that is infrequently purchased, as was the case in *Kodak*. The buyer of an infrequently purchased product cannot spread the search costs over several purchases, so the seller is able to extract the full measure of the costs of search in each purchase. Stigler's result is that equilibrium will occur when

$$q \left| \frac{\delta p}{\delta n} \right| = \textit{cost of search},$$

where q is the quantity of the product to be purchased, p is the price to be paid, and n is the number of searches. Stigler, *supra* note 86, at 215-16. Hence, price dispersion, which is related to the change of price as a result of search, is a function of the costs of search divided by the quantity of goods to be purchased.

Another perspective on this issue is provided in Phillip Nelson, *Information and Consumer Behavior*, 78 J. POL. ECON. 311 (1970). Nelson shows that when the frequency of purchase is low, fewer searches will be performed. *Id.* at 315 & Table 1. Stigler, in turn, notes that the average minimum price when prices are uniformly distributed between 0 and 1 is $1/(n + 1)$, where n is the number of searches. Stigler, *supra* note 86, at 214-15; *see also* Nelson, *supra*, at 318 ("[T]he larger the number of brands a consumer samples, the lower the monopoly power for that good.").

102. Price dispersion is not necessarily high if at least *some* buyers comparison shop. *See* Schwartz & Wilde, *Imperfect Contract Information*, *supra* note 98, at 1402-05. Schwartz and Wilde assume that some buyers will comparison shop, but they do not attempt to show that such comparison shopping is profitable for those buyers. *See id.* at 1402-04. Although their assumption might be borne out if buyers had heterogeneous expectations regarding the value of comparison shopping, so that some buyers expected shopping to be valuable, *see supra* note 98, it could also be the case that no individual buyer would profit from a search, so that no search would be performed. *See also infra* note 154 (discussing different amounts of information available to buyers).

the more likely the buyer is to choose the second of these alternatives, which gives sellers, including Kodak, the power—market power—to charge supracompetitive prices. In this way, information costs lead to market power.[103]

B. *Experience Costs*

A buyer who elects not to, or cannot,[104] search for information regarding a product she purchases will, of course, acquire information about the product *after* purchase. Phillip Nelson has drawn a distinction between search information acquired through investigation prior to purchase and what he called experience information, which is acquired through experience of the product after purchase.[105] Although

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103. Stigler makes the following statements that are apparently inconsistent with those in the text: "From the manufacturer's viewpoint, uncertainty concerning his price is clearly disadvantageous. The cost of search is a cost of purchase, and consumption will therefore be smaller, the greater the dispersion of prices and the greater the optimum amount of search." Stigler, *supra* note 86, at 223. However, a reduction in output, far from disproving the existence of market power, is completely consistent with it. As long as the supracompetitive price is sufficient to compensate the seller for his lower sales, he will benefit. *See supra* note 54; *see also Kodak*, 112 S. Ct. at 2084 ("The sales of even a monopolist are reduced when it sells goods at a monopoly price, but the higher price more than compensates for the loss in sales.").

104. Referring to various forms of quality information, the Supreme Court in *Kodak* said that "[m]uch of this information is difficult—some of it impossible—to acquire at the time of purchase." 112 S. Ct. at 2086.

105. Nelson, *supra* note 101, at 311-12. This Article discusses only search and experience information, but a third category of product information also has been proposed. *See* Darby & Karni, *supra* note 84, at 69. Credence characteristics, Darby and Karni suggest, are those whose value a buyer typically will not know, even after purchase. Darby & Karni, *supra* note 84, at 69. The example that they use is service for durable goods. A seller of such service, if he effects a satisfactory repair, can often provide additional but useless services that can only be detected if the buyer chooses to expend resources to detect them. *Id.* at 69-72. Darby and Karni distinguish credence characteristics from search characteristics, which they define as "qualities which are known before purchase," and experience characteristics, "qualities which are known costlessly only after purchase." *Id.* at 69. However, it is misleading to say that experience is costless after purchase. *See infra* text accompanying note 111. Although for some products it is inevitable, it is not costless. To the extent that a product performs less well than expected, or less well than an alternative to that product, the buyer incurs costs during her use of the product.

Credence characteristics do not really impose costs different from those of search or experience characteristics. Instead, credence costs share some of the characteristics of both search and experience costs. Credence characteristics, like search characteristics, are ones that a buyer may or may not choose to determine, but in any event must make an intentional effort (i.e., incur costs) to discover. And credence characteristics, like experience characteristics, arise, if at all, from the mere fact of a buyer's purchase, so that the buyer has no choice but to suffer the associated costs. Credence costs, then, are a combination of search and experience costs: they arise when a buyer must pay search costs to determine what experience costs he has already suffered.

As one would expect, the same competitive problems arise from credence costs as from search and experience costs. Darby and Karni point out that credence problems al-

Nelson treats experience information as relating to products' quality characteristics, price information can also be acquired through experience, as with long-term service costs in *Kodak*.[106] Regardless of whether price or quality is involved, though, information is typically derived from experience rather than search only when experience is the less expensive of the two. Sometimes that will be the case because experience is relatively inexpensive, as with some consumer goods.[107] In other cases, though, experience will be used despite its considerable expense because the cost of search is even higher. Goods like the copiers and micrographic equipment at issue in *Kodak* are particularly good examples. When a producer provides service over an extended period, it is difficult to determine in advance, through search, the value of those services.[108] In those circumstances, the only alternative may be to rely on experience.

As Nelson describes it, a buying decision in which experience costs are involved is made in much the same way as a decision in the face of search costs. A consumer should continue to seek information until her marginal cost exceeds her marginal revenue.[109] Marginal revenue for experience characteristics, as for search characteristics, is defined by the benefit expected in future purchases of the product as a result of the additional information obtained.[110] Marginal cost, however, is defined not by the costs of active search but by the loss occasioned through use of the product as the buyer-user acquires

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low a seller profitably to provide more service than the buyer truly needs. Darby & Karni, *supra* note 84, at 70-72. This is, however, really no different from price dispersion as a result of pre-purchase search costs. Price dispersion would not be described as fraud, of course, probably because a high-price seller may not (though also may) know of the extra costs that she is imposing on her buyers. But Darby and Karni make clear that intent is not a necessary part of their conception, either. *Id.* at 83. Credence costs can also share with experience costs their long-term nature. Recalling the *Kodak* facts, a long-term contract to use a particular service organization will impose credence costs if the organization provides more service than desired through the life of the contract. *See* 112 S. Ct. at 2077. In light of credence costs' lack of any unique characteristics, they will not be discussed further in this Article.

106. The Court in *Kodak* listed a variety of information, including price information, that was unavailable to equipment buyers at the time of purchase: "data on price, quality, and availability of products needed to operate, upgrade, or enhance the initial equipment, as well as service and repair costs, including estimates of breakdown frequency, nature of repairs, price of service and parts, length of 'down-time' and losses incurred from downtime." 112 S. Ct. at 2085. In contrast, the Court referred to "initial purchase information such as prices, features, quality, and available warranties." *Id.* at 2085 n.20.

107. Nelson's example is canned tuna fish. Nelson, *supra* note 101, at 312.

108. *Id.*

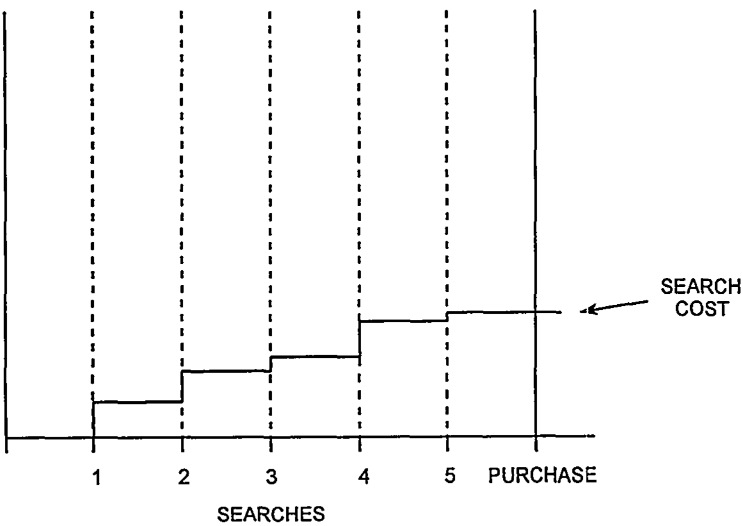
109. *Id.* at 314. For the analogous conclusion for search costs, see *supra* text accompanying notes 95-97.

110. Nelson, *supra* note 101, at 313-14.

experience regarding it.[111] This loss is not necessarily an absolute loss, but is rather the amount by which the value of the actual product used falls short of the highest-valued alternative product of which the buyer is aware.

For some goods, and those discussed by Nelson fall into this category, search and experience characteristics have as many similarities as differences.[112] This is so when a product's useful life is not appreciably longer than the period over which the buyer gains knowledge about it. Information acquired through experience becomes useful only when a new purchase is contemplated. If at that time the particular product through which experience was gained is of no value,[113] so that the buyer need not sacrifice the current product in buying a new one, it is of little import whether the information that the buyer possesses was obtained through active search or through prior use of similar products. In effect, the experience process can be thought of as a search that requires purchase of the product.

The similarities of search costs and Nelson's experience costs can be seen graphically in the following figures. Figure 1 shows the accumulation of search costs prior to purchase. The process is straightforward, with each effort by the buyer to obtain information regarding his possible purchase adding an additional cost to the total:



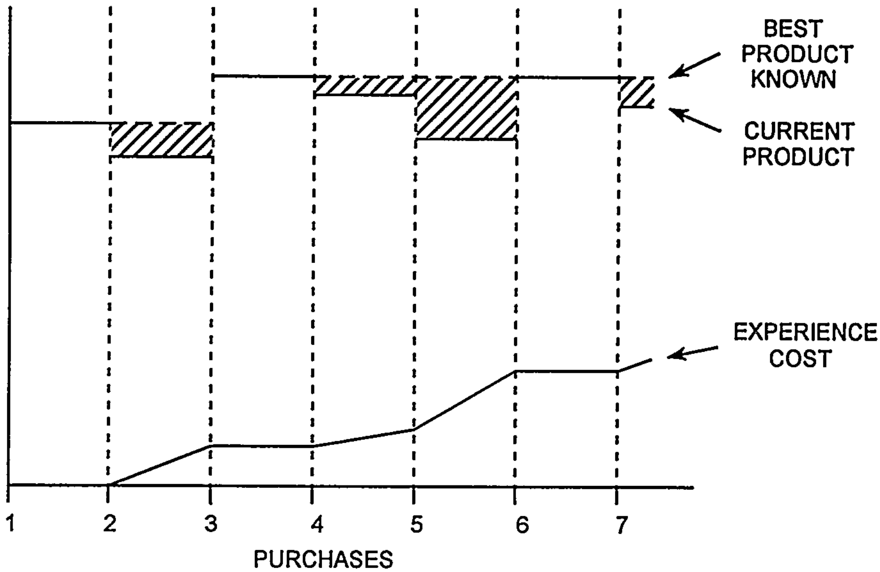
Search Costs.

111. *Id.* at 314.

112. *See* Schwartz & Wilde, *Intervening in Markets*, *supra* note 98, at 662 ("Markets for some experience goods behave as if they were markets for search goods . . . .").

113. Recall that Nelson's example of an experience good was a can of tuna fish, *see supra* note 107, which is obviously of no value after one has experienced it.

Figure 2 shows the corresponding graph for experience costs. The vertical dotted lines in this figure indicate the buyer's repeated purchases of different brands[114] of the product in question. In the upper portion of the figure, the solid line represents the utility of the particular product the buyer is using at a given time, and the dotted line represents the utility of the best product of which the buyer is aware, which will typically be the best product that the buyer has thus far experienced. When the utility of the current product is less than that of the best product the buyer knows, the buyer is incurring Nelson's experience costs, which are represented in Figure 2 by the hatched areas. The lower portion of the figure then shows the integral (accumulated total) of the experience costs:



Experience Costs.

Qualitatively, Figures 1 and 2 do not differ appreciably. After several searches or experience with several brands of products, both search costs and experience costs are sunk costs, and it is (or should be) unimportant to the buyer just how the costs were incurred. However, experience costs do not always function in this way.

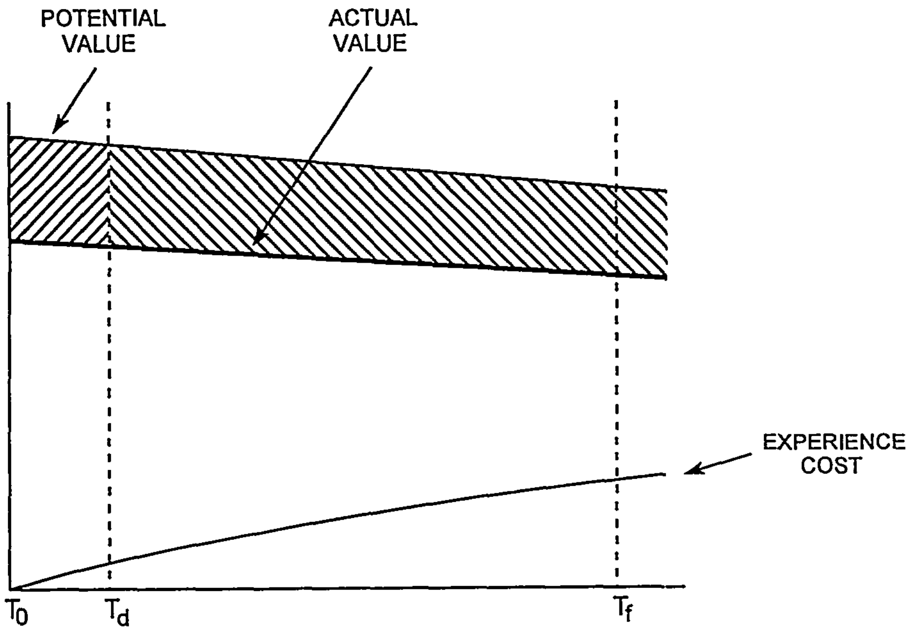
C. Experience Costs and Lock-In

The decision process described in the preceding paragraphs, which can be referred to as the iterative experience process, is the one

114. The purchases actually could be of different brands of the same product, or of somewhat different products. The important point is that they are different alternatives that meet a need of the buyer more or less well.

on which Nelson focuses.[115] However, the iterative process cannot be applied to durable goods because it assumes that the buyer, after gaining brief experience with one brand of a product, moves on to purchase another. Experience costs are then, as Figure 2 showed, the losses the buyer suffers through inadequate performance of a product during the limited product lifetime over which the buyer uses it. With durable goods, the experience process works differently. A buyer of a durable good gains sufficient experience to determine the value of the product within a period considerably shorter than the product's useful life. Therefore, what Nelson calls "experience costs," the losses from sub-par performance, continue long after the buyer has learned all she ever learns about product quality.[116]

Figure 3, then, shows how experience costs accumulate for durable goods:



Experience Costs with Lock-In.

The time scale for the figure extends from an initial time T0, the time at which the product is purchased, to a final time Tf, the time at which the useful life of the product ends. The actual value of the current product and the value of a possible alternative are shown; both de-

115. *See supra* text accompanying notes 109-11.

116. *Cf. supra* text accompanying notes 112-13 (observing that Nelson assumes that the product's useful life is no longer than the learning period).

crease over time as the products depreciate.[117] The difference between the value of the alternative product and the current one is indicated by the hatching, and is, as in the iterative process,[118] the loss suffered by the buyer as she continues to use the current product. The total of this loss over time can be calculated to yield a total amount of loss, the "experience cost," up to any given time t.[119]

Figure 3 also shows the significance of lock-in. Assume that at time Td the buyer has ascertained the experience costs that she is suffering, i.e., the buyer is no longer learning from her experience.[120] The learning period prior to Td is represented in Figure 3 by the upward-sloping hatching; after Td, when the buyer is informed, the "experience"[121] costs are indicated by downward-sloping hatching. As noted above, the nature of a durable good is that time Tf, the product's useful life, is typically much greater than time Td, the learning period, as represented in Figure 3. After time Td, any further "experience costs" are of no value to the buyer, and she would prefer to switch to the alternative product, which she knows performs better.[122]

Switching costs, however, determine whether a buyer can benefit from her experience costs. In the absence of switching costs, the experience costs before time Td in Figure 3 would prompt the buyer to switch so that she could avoid the costs after time Td. *With* switching costs, though, the buyer will gain from switching only if, and to the extent that, the experience costs that she would avoid from doing so exceed her switching costs. Therefore, because experience costs rep-

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117. Actually, because the buyer would probably purchase an alternative product when it was new, the potential value of the alternative could be shown as a constant value (or even as an increasing one if new, improved products were coming on the market). That would not, however, change the form of the analysis.

118. *See supra* text accompanying note 111.

119. That is, the experience cost is

$$\int_{T_0}^{t} (\textit{potential value } (t) - \textit{current value } (t))\, dt.$$

120. Of course, even at time Td, the buyer is unlikely to have perfect information regarding her available alternatives, for the same reasons that she did not have perfect information about the product prior to the purchase. The buyer will nevertheless have acquired some information about her alternatives. For example, in *Kodak*, equipment buyers would, over the first months of ownership, have acquired information regarding their equipment's reliability and service costs. *See Kodak*, 112 S. Ct. at 2085-86 (1992).

121. "Experience" is put in quotation marks here because, though the buyer continues to experience the costs, she is no longer learning from the experience. These "experience" costs, therefore, differ from Nelson's experience costs. *Cf. supra* part III.B (describing Nelson's view of experience costs).

122. Note that the buyer need not decide to switch immediately at time Td, the time at which she acquires sufficient information to assess her alternatives; she could equally well decide to switch later. However, at time Td the buyer's switching and (future) experience costs will be at their greatest, so at that time that her savings would be greatest.

resent the amount by which the performance of the buyer's product falls short of its alternatives, switching costs represent the maximum performance shortfall to which the buyer is locked in. That performance shortfall is the amount by which the seller of the product is able to extract supracompetitive terms from the locked-in buyer.[123]

The preceding discussion provides a framework for determining the antitrust market power of a seller over a locked-in buyer. Because experience costs measure the degree by which the quality of the buyer's product falls short of—or, equivalently, the amount by which its price exceeds[124]—the competitive level, the costs can be used to determine the seller's market power. In this role, the "experience" costs do not serve (as they do in Nelson's conception) to measure costs that are more-or-less willingly incurred by buyers in obtaining useful information,[125] but instead measure costs that, even after the buyers have obtained relevant information, the buyers must unwillingly pay to sellers. Whether these supracompetitive payments from buyers to sellers are sufficient in particular cases to be of antitrust concern is discussed in the next part, both in the specific context of *Kodak* and more generally.

IV. Information-Based Market Power

This Article contends that tying market power can be produced by buyers' difficulties in obtaining market information. As Part III showed, this view is accepted by economists, but it seems not yet to have been applied to *Kodak*.[126] Even Professor Areeda did not take

123. The seller in such a situation is exploiting an actual locked-in buyer, but the analysis applies more generally even to potential buyers. So long as the potential buyer is unable to obtain information through search at a cost lower than the experience costs of Figure 3, she will be subject to the same power of the seller as is a buyer who has already purchased the product. *See infra* part IV.A.

124. A product that performs one-half as well as an alternative at the same price, for example, is equivalent to a product that performs at the same level for twice the price. *See* Carl Shapiro & David J. Teece, *Systems Competition and Aftermarkets: An Economic Analysis of* Kodak, 39 Antitrust Bull. 135, 146 n.22 (1994) ("In its purest form, life-cycle costing boils down to a single output-oriented measure: for copiers, this measure would be the cost per copy over the lifetime of the equipment, including equipment, parts, service, suppliers, and the cost of operator time.").

125. In Nelson's view, experience costs, like search costs, are a buyer's means of acquiring information about potential purchases. *See supra* part III.B. Although the buyer would no doubt prefer to obtain such information at no cost, she will incur experience costs willingly to the extent that she thereby realizes greater savings. *See supra* text accompanying note 109.

126. Most treatments of *Kodak* have considered the case in the context of the ISOs' admission in the court of appeals that Kodak did not have market power in the equipment market. *See, e.g.*, Areeda & Hovenkamp, *supra* note 5, at ¶ 1709.2 ("The issue then is whether the manufacturer has power over parts (the 'aftermarket') although he has none

this approach in his antitrust treatise's recent discussion of *Kodak*,[127] despite having previously made a similar point in the treatise.[128] In his earlier volume, Professor Areeda considered a primary market-aftermarket tie like the one in *Kodak*, and said that such "a tie might obscure the height of the tying product price from the defendant's own customers."[129] His example was that of a manufacturer of an automobile that charged supracompetitive prices for its repair parts,[130] thus forcing buyers of its cars to pay "a hidden premium on the car itself"[131] and distorting consumers' purchasing decisions.[132] The argument in this Article proceeds from a recognition that each of the effects cited by Areeda—forcing buyers to pay a premium and distorting their purchasing decisions—corresponds to an accepted definition of antitrust market power.[133] The first sections below describe how such power could have been created in *Kodak*, applying the economic analysis of Part III to the *Kodak* facts. The following sections

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in the machine market (the 'primary market')."); Shapiro & Teece, *supra* note 124, at 137 ("Our goal is to lay out the questions an economist must explore to determine whether a firm facing equipment competition nonetheless has genuine market power in an aftermarket."); *see also supra* note 35 (recounting the conclusion of the court of appeals that Kodak lacked market power in the equipment market). Professor Lande, discussing *Kodak*, has observed generally that information deficiencies, like market share, can create market power, but he did not explore the question in any detail. *See* Robert H. Lande, *Chicago Takes It on the Chin: Imperfect Information Could Play a Crucial Role in the Post-*Kodak *World*, 62 ANTITRUST L.J. 193, 195 (1993) ("Imperfect information can be the equivalent of traditional market share-based market power."). Professor Craswell anticipated many of the issues presented by *Kodak* in his insightful and often-cited 1982 article, *see* Craswell, *supra* note 80, but he did not consider information costs as a source of market power. *See id.* at 663 ("This Article . . . departs from the traditional tie-in literature by analyzing the conditions under which tie-ins are likely to be imposed by sellers without any monopoly power.").

127. *See* AREEDA & HOVENKAMP, *supra* note 4, ¶ 1709.2.

128. *See* 9 PHILLIP E. AREEDA, ANTITRUST LAW ¶ 1712(f) (1991); *see also infra* text accompanying notes 129-33.

129. AREEDA, *supra* note 128, ¶ 1712(f).

130. In Areeda's example, the buyers are not forced to buy the manufacturer's parts directly, but are indirectly forced to do so by a requirement that the manufacturer's dealers carry only those parts. *Id.* Areeda assumes that "most customers rely on these dealers for repairs," *id.*, so that the manufacturer effectively creates a tie. It is interesting to note that there is no real forcing in this scenario, and that the arrangement has something of the nature of a vertical restraint. In *Kodak*, in contrast, there was actual forcing. *Kodak*, 112 S. Ct. at 2080 ("[R]espondents have presented sufficient evidence of a tie between service and parts. The record indicates that Kodak would sell parts to third parties only if they agreed not to buy service from ISOs."). Nevertheless, a vertical arrangement like that described by Areeda presents analogous, but less competitively dangerous, informational considerations. *See infra* part V.B.2.

131. AREEDA, *supra* note 128, ¶ 1712(f).

132. *Id.* ("Deceiving consumers and impairing their ability to make intelligent market choices is anticompetitive and thus cannot justify [a tie].").

133. *See supra* note 54.

then discuss some more general implications of information-based market power.

A. *Information-Based Market Power in* Kodak

The discussion of *Kodak* here focuses on the effects of Kodak's tie on *potential* purchasers of Kodak equipment. Some commentators,[134] and perhaps the *Kodak* opinion itself,[135] treat information costs as a problem only when an aftermarket tie is imposed after the buyer's purchase of equipment. In fact, information costs present competitive problems even when the tie is imposed prior to the initial purchase. That is so because the tie, even when the buyer is aware of it, amplifies the effects of the buyer's uncertainty by requiring long-term purchases of the seller's aftermarket product, and thus increases the seller's information-based market power. The buyer's pre-purchase knowledge of a tie allows her only to anticipate those additional costs of the tie about which she knows prior to the purchase; it does not reduce the effects of the information costs that prevented

134. *See, e.g.*, Joseph Kattan, *Market Power in the Presence of an Installed Base*, 62 ANTITRUST L.J. 1, 14 (1993) (indicating that the ability of a seller imposing a primary market-aftermarket tie to charge a supracompetitive price in the aftermarket depends on the presence of customers who are already locked in to the primary market); Shapiro & Teece, *supra* note 124, at 149-51. Professors Shapiro and Teece are particularly explicit on this point, stating that "there should be little or no concern about policy changes that are announced in advance of equipment sales and anticipated by buyers." *Id.* at 149. They reach this conclusion on the claim that "[w]ell-informed customers will pay no more than the competitive price for [a] vendor's system, so long as competition exists in the primary equipment market." *Id.* But the point of information costs is that customers are *not* "well-informed," so that the markets (primary market and aftermarket) are not competitive. Shapiro and Teece resist this point by arguing that the opportunity to reap supracompetitive profits in the aftermarket will cause sellers to compete for customers' business in the primary market: "So long as sellers anticipate aftermarket revenues and costs, consumers will ultimately pay a competitive price for systems, even if they are not sophisticated or well informed." *Id.* at 148. But this is incorrect. If the *customers* cannot accurately "anticipate aftermarket revenues and costs," the *sellers'* ability to do so (assuming it exists, *see supra* notes 79, 90) is of little importance. That the sellers must compete with each other for primary-market sales does not mean that the primary market will be competitive because the terms of competition will include customers' possibly erroneous expectations regarding aftermarket costs. In the absence of collusion, sellers always compete for sales, but market imperfections—including information costs—still lead to imperfect competition. *Cf. Kodak*, 112 S. Ct. at 2086 & n.21 (noting that even if a seller's competitors have information that the seller is pricing supracompetitively, the "competitors may find it more profitable to adopt [the seller's] policy than to inform the consumers").

135. The *Kodak* majority rejected Justice Scalia's dissenting view that a parts-service tie should be treated like an equipment-service tie, because, as the majority noted, there was a lack of "evidence that [Kodak's] restrictive parts policy was . . . generally known." 112 S. Ct. at 2087 n.24 (quoting *id.* at 2096 (Scalia, J., dissenting) (internal quotations omitted)). Whether the majority would have found an equipment-service tie objectionable as an exercise of market power is unclear.

buyers of Kodak equipment from accurately determining lifecycle prices.[136] Hence, although locked-in buyers also face informational problems (albeit less fundamental ones[137]), the following sections emphasize information-based market power in the Kodak equipment market rather than in the aftermarkets.[138]

1. Information Costs in *Kodak*

The effect of information costs in *Kodak* can be seen by assuming, contrary to fact, that a Kodak equipment buyer could have entered into one-year service contracts with service organizations. The buyer's decision process would then have been much like Nelson's description of the iterative experience-goods process.[139] The buyer could have selected a service organization for the first year and then, at the end of that year, decided whether to continue with that organization based on the service it provided. If, given the quality of service the buyer received, the buyer expected an improvement from switching to another organization,[140] the buyer would have switched; this process could have continued year-by-year until the buyer no longer believed she stood to gain by switching.

By imposing the tie, though, Kodak locked the buyer into the same service organization for the life of the equipment and prevented her from learning from experience. Kodak's action precluded the buyer from iteratively seeking improved service organizations, in which case she would have suffered only Nelson's iterative experience costs, and instead forced the buyer to: (1) stay with the original service organization for the life of the equipment; or (2) sacrifice switching costs to change to another brand. The difference is that between Figures 2 and 3. Whereas without the tie the buyer's information costs could have been minimized by seeking out better service organiza-

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136. *See supra* text accompanying notes 55-56.

137. The problems created by post-purchase exploitation of locked-in buyers are not worsened by a tie like the one imposed by Kodak. *See infra* part V.C.1 (distinguishing between post-purchase and pre-purchase information costs); *infra* part IV.A.1 (discussing creation of market power by pre-purchase information costs). Moreover, at least in cases in which the form of post-purchase exploitation can be anticipated, it can be protected against by contract, a possibility not present when the parties are faced with pre-purchase information costs. *See supra* note 79.

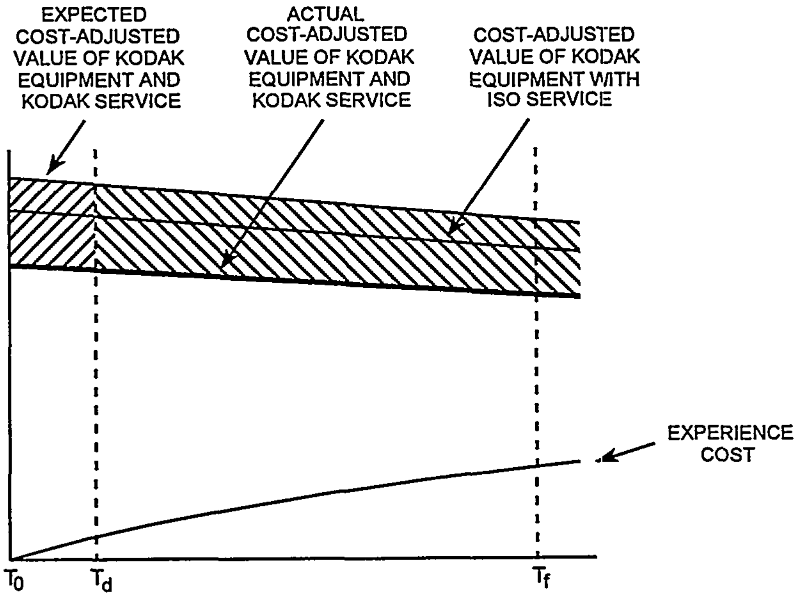
138. *Cf. supra* note 126 (noting that most commentary on *Kodak* has focused on aftermarket power).

139. *See supra* part III.B.

140. The buyer would have focused only on the benefits from switching, because the costs of switching from one service organization to another would be minimal if the buyer had only one-year service contracts. *But see supra* note 83 (observing that long-term contracts that impose switching penalties can have antitrust implications).

tions each year, as illustrated in Figure 2, with the tie the information costs mounted steadily because the buyer was limited to Kodak service, as indicated in Figure 3.

Figure 3, though useful in showing the nature of the experience-cost problem faced by Kodak equipment owners, overlooks some other considerations necessary to analyze the purchasing decision of potential equipment buyers. For that purpose, Figure 4, an elaboration of Figure 3, is helpful:



Experience Costs and Pre-Purchase Lock-In for Kodak Equipment.

In Figure 4, as in Figure 3, the experience costs are divided into two kinds: those incurred as the buyer is learning about the product, shown by upward-sloping hatching, and those incurred after the buyer has learned of unexpected costs, shown by downward-sloping hatching. In Figure 4, as in Figure 3, the dividing point between these two periods is shown as Td.

As Figure 4 is constructed, the buyer is assumed to anticipate a level of Kodak service that would provide greater value than her alternative, ISO service.[141] The actual quality of Kodak service, however,

141. It would also be possible in Figure 4 to distinguish between the expected and actual values of ISO service. As will shortly become apparent, though, the expected value of ISO service has little independent significance. In any event, because of the tie requiring that Kodak equipment owners use Kodak service, the buyer is not actually presented with a choice combining Kodak equipment and ISO service; the buyer's alternative is that of equipment of another manufacturer and ISO service.

is lower than that of ISO service. In these circumstances, it would be possible to treat as the buyer's experience costs either the difference between expected and actual Kodak service costs or the difference between ISO and (actual) Kodak service costs. Nelson's comparison of actual costs with the costs of a potential alternative[142] suggests that the experience-cost measure should be the difference between Kodak and ISO service.[143] However, although the difference between Kodak and ISO service is the measure of the equipment owner's losses—Nelson's concern[144]—it is not the measure of the buyer's uncertainty at the time of purchase.[145] The buyer makes her purchasing decision on the basis of the expected value of Kodak service, so for market power purposes that is the value that should be the reference against which actual Kodak service value is compared. The value of ISO service should be considered only for damage calculations.[146]

Thus, Figure 4 shows that, because the expected value of Kodak service is greater than that of ISO service,[147] a buyer would be likely to purchase Kodak equipment even if she knew that she would be required to purchase Kodak service over the entire life of the equipment. However, because, referring again to Figure 4, Kodak service performs less well than the buyer expected, the unexpectedly poor performance will cause her to suffer experience costs. Furthermore, to the extent that the tie locks her in to Kodak service, and to those experience costs, she will suffer from them for the life of her equipment (Tf), rather than just until she learns of the poor quality of Ko-

142. *See supra* part III.B-C.

143. In Figure 4, Nelson's comparison would lead to a lower market power measure than the text proposes. That would not always be the case, however. *See supra* note 141.

144. Because Nelson was discussing an iterative purchase process, each of the purchases after the first could be compared to the previously best-performing purchase. *See supra* text accompanying note 111. When, as in Figure 4, the buyer has made no previous purchase, the benchmark for comparison can only be the buyer's expectation.

145. The Kodak-ISO difference would, however, be the relevant measure if the tie were imposed after the purchase and the buyer had been using ISO service, because in that case the buyer's expectation would be determined by the ISO service that she had experienced. *See supra* note 144.

146. In Figure 4, then, the buyer's damages would be the difference between the actual value of Kodak service and the actual value of ISO service, an amount less than the uncertainty that determines Kodak's market power. It should be noted, though, that if the actual value of Kodak service were greater than the value of ISO service, the buyer's damages would be the difference between the expected and actual values of Kodak service. In other words, the buyer's damages can be no greater than her uncertainty, because the uncertainty is the shortfall between her actual service value and that which she voluntarily chose to purchase.

147. Assume that in Figure 4 the expected and actual values of ISO service are equal. Note, though, that the basic analysis does not require this. *See supra* note 141 and accompanying text.

dak service (at Td). Thus, the tie increases the information costs the buyer faces, despite her pre-purchase knowledge of it. The increase in those costs provides the seller with power over the price of the equipment.

2. Calculating Information-Based Market Power

Part III described how the total cost of uncertainty can be computed for the lifetime of a product by adding the experience costs for the years of the product's useful life, and the preceding section defined the experience costs for Kodak equipment.[148] Together, then, these two portions of the Article define quantitatively the information costs faced by a Kodak equipment buyer.[149] The significance of those costs can only be assessed, however, by comparing them to some threshold of market power. A logical source for that threshold measure is the Department of Justice's merger guidelines,[150] which propose as a rule of thumb that market power is present if a seller has the

148. That is, the experience costs are calculated by the integration described in note 119 *supra* and the accompanying text. The result for total experience costs is

$$\int_{T_0}^{T_f} (\textit{expected value } (t) - \textit{actual value } (t))\, dt.$$

It is important to note, though, that the *increase* in experience costs due to the tie is only that portion of those costs that accumulate after T_d, which is

$$\int_{T_d}^{T_f} (\textit{expected value } (t) - \textit{actual value } (t))\, dt.$$

It is this latter quantity that measures the buyer's damages. The buyer suffers no antitrust damages before Td, because (assuming the manufacturer-seller has no non-information-based power in the equipment market) the buyer freely chooses to accept the manufacturer's service in the first year. It is only after Td, when the buyer has learned of the higher-than-expected costs of the manufacturer's service, that the tie forces her to continue to incur those costs. *Cf. supra* notes 144-46 and accompanying text (discussing analogous damages issues).

149. The buyer's experience costs are, of course, reduced to the extent that she is able to obtain information through search. However, the use of the buyer's expectation of product value as the benchmark against which experience is measured, as described *supra* 144-46 and accompanying text, allows the incorporation of search information into that expectation so that experience costs will reflect the buyer's net uncertainty. It must be remembered, though, that search costs should be added to experience costs to yield the buyer's total information costs. *See also infra* note 154 (noting that the amount of available information may differ among buyers).

150. U.S. DEP'T OF JUSTICE & FEDERAL TRADE COMM'N, 1992 HORIZONTAL MERGER GUIDELINES (1992), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,104 [hereinafter 1992 MERGER GUIDELINES]; 1984 U.S. DEP'T OF JUSTICE, MERGER GUIDELINES (1984), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,103 [hereinafter 1984 MERGER GUIDELINES]; 1982 U.S. DEP'T OF JUSTICE, MERGER GUIDELINES (1982), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,102 [hereinafter 1982 MERGER GUIDELINES].

ability to maintain price at a level five percent higher than the competitive level for one year.[151] Although the specific five-percent test of the guidelines should not be used uncritically,[152] it is generally accepted as a rough measure of market power, even in non-merger cases.[153] Of the two elements of the guidelines' test—price (five percent above the competitive level) and persistence (for one year)—the latter was easily met in the circumstances of the *Kodak* tie. The effect of the tie was to impose a requirement on the buyer that it use Kodak's service for the life of the Kodak copier, which was considerably longer than one year. Whether market power was present in *Kodak* then depends on whether the total information allowed Kodak to raise prices by five percent.

In general, as described in Part III, a seller can charge a price that exceeds the competitive level by the amount of the information costs faced by buyers.[154] Therefore, to determine whether Kodak could

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151. The five-percent-for-one-year test was introduced in 1982 MERGER GUIDELINES, *supra* note 150, § II A and reaffirmed in 1984 MERGER GUIDELINES, *supra* note 150, § 2.11. It provides specificity to the Guidelines' more formal and flexible test of a "small but significant and nontransitory" price increase. *Id.* The 1992 MERGER GUIDELINES replaced the one-year period in the five-percent test with a period defined as the "foreseeable future." 1992 MERGER GUIDELINES, *supra* note 150, § 1.11.

This price-increase test is actually used in the merger guidelines as a means of defining a relevant market. It is nevertheless a measure of market power:

> The Guidelines define a market as a group of products and a geographic area such that a hypothetical firm that is the only present and future seller of those products in that area would possess market power—the power profitably to restrict output and to raise prices. A firm that is the only present seller of those products in that area would not be able to exercise market power, if its attempt to impose a small but significant and nontransitory price increase would cause buyers to switch to other products or to products in other areas or would induce other firms to begin selling those particular products.

1984 MERGER GUIDELINES, *supra* note 150, Statement, § 1 (erroneous punctuation omitted).

152. "[W]hat constitutes a 'small but significant and nontransitory' increase in price will depend on the nature of the industry . . . ." 1992 MERGER GUIDELINES, *supra* note 150, § 1.11.

153. *See, e.g.*, Hay, *supra* note 54, at 812-13 (including merger-guideline test among general measures of market power); Hovenkamp, *supra* note 4, at 1451 (referring to merger guidelines in context of selecting market-power threshold, but suggesting that "a ten percent rule seems justified by the reality of product differentiated markets").

154. The amount of information available might differ for different buyers. For example, a large company might use many Kodak copiers and thereby gain considerable experience with their operating expenses, but the company might not make that information public (perhaps feeling that there is no reason why its competitors should gain from its experience). In that case, an antitrust claim based on information costs could not be made by the large company. It is important to note, though, that the presence of some informed buyers would not prevent valid information-based claims from being brought by buyers who do not have access to the same information. There is some confusion regarding this issue in Areeda and Hovenkamp's discussion of *Kodak*. *See* AREEDA & HOVENKAMP,

raise its overall prices by five percent, the Kodak information costs must be compared to the total cost of the product, the equipment-and-parts-and-service package.[155] Table 1 provides a numerical example of how this calculation can be made, roughly following the graphical example of Figure 4. Consider the purchase of a copier, with a useful life of ten years, in 1994 for $200,000. Assume that service from Kodak costs $10,000 per year at the time of purchase, while service from an ISO costs $8,000 per year at that time, and that the cost of each increases by 10% per year. Assume further that the buyer expects Kodak service to be 25% more valuable than the ISO's, but that it is actually only 12.5% more valuable. Under those assumptions, the expected value-adjusted cost of Kodak service ($7,500 per year in 1994) is less than the cost of ISO service, but actual Kodak costs ($8,750 per year in 1994) are greater than ISO costs, as is represented in Figure 4.[156] Finally, assume a discount rate of 5% per year. The buyer's information costs are then calculated as shown in Table 1, below:

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supra note 4, ¶ 1709.2. Initially, they say that a *Kodak*-like tie will not create market power unless "[a] substantial number of... customers are too 'unsophisticated' [*i.e.*, uninformed] to protect themselves by judicious interbrand comparisons before they become locked in." *Id.* ¶ 1709.2a (footnote and internal reference omitted). They do not explain why, however, it is necessary that there be a "substantial" number of uninformed buyers. Perhaps they intend only to acknowledge the tying-law requirement that a "substantial" volume of commerce be foreclosed, Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 16 (1984), or to exclude cases in which only a small number of customers with unique needs are exploited, *see infra* note 178. In fact, they acknowledge that a tie imposed on uninformed buyers would be unlawful even if some other buyers were informed so that a tie as to them would be lawful. AREEDA & HOVENKAMP, *supra* note 4, ¶ 1709.2(f)(2)(E). It is true, though, as Areeda and Hovenkamp point out, that if continued equipment purchases by the informed buyers were important to the seller, the seller would only be able to exploit uninformed buyers if it could price-discriminate between the informed and uninformed groups. *See id.* ¶ 1709.2(e)(3).

155. *See* Hovenkamp, *supra* note 4, at 1456-57 ("Presumptively, then, evidence of price discrimination or of higher prices in repair contracts, or in the purchase price of replacement parts, should count as evidence of substantial market power in the aftermarket only if the evidence would count in that fashion when the total cost of owning a photocopier is taken into account.").

156. The better performance is represented in the table by reducing the manufacturer's service costs by the amount of the performance premiums. The difference can be thought of as the value (of copier services, for example) that would be lost if ISO service were used.

TABLE 1. INFORMATION COST CALCULATIONS[157]

Year	Expected Mfr.'s Value-Adjusted Service Cost	ISO's Service Cost	Anticipated Savings of Expected Mfr.'s Service Costs Over ISO Service Costs	Actual Mfr.'s Value-Adjusted Service Cost	Experienced Difference Between Expected and Actual Mfr.'s Service Costs	Experienced Difference Between Actual Mfr.'s and ISO's Service Costs
1994	7500	8000	500	8750	1250	750
1995	8250	8800	550	9625	1375	825
1996	9075	9680	605	10588	1513	908
1997	9983	10648	666	11646	1664	998
1998	10981	11713	732	12811	1830	1098
1999	12079	12884	805	14092	2013	1208
2000	13287	14172	886	15501	2214	1329
2001	14615	15590	974	17051	2436	1462
2002	16077	17149	1072	18756	2679	1607
2003	17685	18864	1179	20632	2947	1768
Total	119531	127499	7969	139452	19922	11953
Total Present Value	91004	97114	6070	106218	15174	9104
Total Purchase Price = Initial Equipment Purchase Price ($200,000)+ Present Value of Actual Service Costs ($106,218)				306218		
Market Power Measure = Present Value of Information Cost ($ 15,174) / Total Purchase Price ($ 306,218)					4.955%	
Damages = Present Value of Difference Between Actual Service Costs and ISO Service Costs for Years 1995-2003						9104

157. Some of the figures in Table 1 do not add up exactly because of rounding errors.

Under the adopted assumptions, the buyer's information costs are almost exactly the five percent of the overall purchase price that the merger guidelines suggest as a threshold.[158] The information costs would therefore be at a level sufficient to provide Kodak with market power. It is not enough, though, that information costs are sufficient to create market power; a seller will be able to extract the full information-cost premium only if it will cost the buyer more to switch than to pay the premium. Therefore, Kodak will gain market power from the five-percent level of information costs only if switching costs also meet or exceed that level.[159] For a durable good like the Kodak copier of Table 1, though, the buyer would almost certainly have to sacrifice far more than five percent of the copier's overall costs (or seven-and-one-half percent of the cost of the equipment alone[160]) in resale

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158. *See* Lande, *supra* note 126, at 195 ("Information imperfections might mean that Kodak could raise the price of its package 5 percent above the competitive level successfully.").

159. As Professors Areeda and Hovenkamp have it, "one should ask . . . whether a customer's switching costs (such as unamortized machine price minus resale value plus non-shiftable investments in training and accessories) after some transition period (say, two years) exceed some multiple of the alleged above-market premium for the primary-secondary package for the remaining useful life of the primary product." AREEDA & HOVENKAMP, *supra* note 4, ¶ 1709.2(c)(5). In this Article, the multiple proposed is 1, because a switching cost that exceeds a buyer's information cost is sufficient to allow a seller to exploit that information cost. As the comment of Professors Areeda and Hovenkamp suggests, though, the text and Table 1 neglect a complication. As the buyer's ownership period passes, both her switching costs and the amount that she has yet to lose through experience costs decrease. Therefore, it will not always be sufficient to determine just whether the switching costs at time T0 exceed experience costs (and whether both exceed a market-power threshold). The more precise question is whether, over the course of the buyer's ownership period, switching costs exceed the remaining portion of the experience costs premium *at each time*. Referring back to Table 1, the question is whether switching costs exceed the present value of the remaining information costs for each year; if switching costs are lower than information costs for any year, it is the lower switching costs that should be used in calculating market power. Representing this distinction more formally, the quantity of interest for determining market power is not

$$\min\left(\textit{switching cost}\ (T_0),\ \int_{T_0}^{T_f} (\textit{expected value}\ (t) - \textit{actual value}\ (t))\, dt\right),$$

as would be suggested *supra* in note 122 and accompanying text, but is

$$\int_{T_0}^{T_f} \min\ [\textit{switching cost}\ (t),\ (\textit{expected value}\ (t) - \textit{actual value}\ (t))]\ dt.$$

This point is neglected in the text because the additional complexity that it introduces obscures the basic point, and because if switching costs are high, as they are for most durable goods, the result does not change.

160. That is, \$15,174 / 200,000, which is approximately equal to 7.5%.

value alone if she were to switch to another brand. Therefore, in the example of Table 1, Kodak would have information-based market power.[161] Because the numbers assumed in constructing that table were chosen to be quite plausible, it appears that the possibility of such market power is not merely an academic concern.

B. General Implications of Information-Based Market Power

As shown in the preceding sections, a case like *Kodak* can be fruitfully analyzed in terms of market power created by information deficiencies. However, although Part III showed that this approach is well supported by the economic literature,[162] its legal status is unclear. The following sections turn to a consideration of the specific antitrust-law implications of this Article's interpretation of *Kodak*. The first section discusses the Supreme Court's decision in *Jefferson Parish Hospital District No. 2 v. Hyde*,[163] in which the Court said that information costs "do not generate the kind of market power that justifies condemnation of tying."[164] Although this statement appears to conflict with the approach to *Kodak* described here, it will be seen below that the markets in the two cases functioned quite differently, and that *Jefferson Parish*'s rationale for denying the importance of information costs is not applicable in cases like *Kodak*. The subsequent section discusses information-based market power in the context of the broad criticisms of tying law made by Chicago School commentators, and, perhaps surprisingly, shows that an information-based tie is in some respects *more* of a competitive danger than typical ties, and in fact is not subject to the Chicago School critique. The third section compares the tying-based information restriction of *Kodak* with collectively imposed information restrictions in two other Supreme Court cases; it shows that the Court's treatment of the informational effects in *Kodak* was consistent with those cases. The final section in this part comments on the possibility of legitimate justifications for tie-ins in the presence of information costs.

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161. The damages suffered by the buyer are not generally the same as the buyer's information costs. *See supra* text accompanying notes 144-46. In the example represented in the table, as its last line indicates, the buyer's damages would be the present value of the difference between the service costs paid by the buyer (the manufacturer's actual service costs) and the costs that the buyer could have paid in the absence of the tie (the ISO's service costs), but would not include the cost difference for the first year, the period in which the buyer first learned through experience of the higher manufacturer costs. *See supra* note 148.

162. *See supra* part III.

163. 466 U.S. 2 (1984).

164. *Id.* at 27.

1. Product Information and Consumer Decision-Making

Both the majority and the dissent in *Kodak* relied upon the discussion of informational considerations in *Jefferson Parish*,[165] which is not surprising in view of the *Jefferson Parish* Court's apparently inconsistent statements on the matter. *Jefferson Parish* seemed to recognize the possibility of information-based market power in its acknowledgment that a consumer could be forced to accept a tied product combination "by an inability to evaluate the true cost of either product when they are available only as a package."[166] At the same time, though, the Court appeared to reject information costs as a source of market power. Addressing the conclusion of the court of appeals that consumers in the medical-services markets at issue in *Jefferson Parish* were both insensitive to price, because of third-party payments by insurers, and unable to evaluate the quality of medical services,[167] the Court said that although "these factors may generate 'market power' in some abstract sense, they do not generate the kind of market power that justifies condemnation of tying."[168]

Explanation of this apparent inconsistency is not as difficult as it at first seems.[169] In *Jefferson Parish*, the challenged tie was one that

165. *Kodak*, 112 S. Ct. at 2085 n.19 (citing *Jefferson Parish*, 466 U.S. at 15, 27), 2097-98 (Scalia, J., dissenting).

166. *Jefferson Parish*, 466 U.S. at 15.

167. *Id.* at 27 (citing Hyde v. Jefferson Parish Hosp. Dist. No. 2, 686 F.2d 286, 290 (5th Cir. 1982), *rev'd*, 466 U.S. 2 (1984)).

168. *Id.* (footnote omitted).

169. An explanation different from the one offered here is provided by the Third Circuit in Town Sound & Custom Tops, Inc. v. Chrysler Motors Corp., 959 F.2d 468 (3d Cir.) (en banc), *cert. denied*, 113 S. Ct. 196 (1992), discussed *infra* in the text accompanying notes 270-74. The *Town Sound* court suggested that *Jefferson Parish*'s skepticism regarding information-based market power would not exist where the information problems involved were induced by the seller. *Id.* at 490 n.30. It viewed *Jefferson Parish* as rejecting liability for an information-based tie derived from "a preexisting and continuing problem of price and quality competition." *Id.* In *Town Sound*, in contrast, the court said that the claim against Chrysler was one in which "the tie-in has *induced* a market failure, not merely taken advantage of an existing one." *Id.*

This appears to be a conception of causation similar to the discussion in this Article of market power *created* by ties. *See infra* part IV.B.2. If so, however, the tie in *Jefferson Parish* could, like that in *Town Sound*, have caused an informational market failure and therefore have created market power. That possibility was not considered in *Town Sound*, though it would seem to follow from the comments in *Jefferson Parish* itself referring to consumers' "inability to evaluate the true cost of either [tying or tied] product when they are available only as a package." *Jefferson Parish*, 466 U.S. at 15. The discussion of *Jefferson Parish* in the text takes a different tack by focusing not on information costs, but on switching costs.

One commentator has also discussed a causation requirement in the information-based tie context, suggesting that lower courts should impose such a requirement. *See* Jacobs, *supra* note 3, at 371-73. Professor Jacobs's short discussion of the causation re-

required patients at the hospital who were receiving services that required anesthesia to use one of the anesthesiologists with whom the hospital had a contract.[170] The key to the Court's view of the information-cost argument is found in its response to the claim that patients had insufficient information to evaluate the quality of hospital services: "[I]f consumers cannot evaluate the quality of anesthesiological services, it follows that they are indifferent between certified anesthesiologists even in the absence of a tying arrangement—such an arrangement cannot be said to have foreclosed a choice that would have otherwise been made 'on the merits.' "[171] This statement makes clear that the Court in *Jefferson Parish* relied on a perception that buyers who accepted anesthesiology services that they allegedly did not want were "indifferent" regarding those services—that there was no coercion (pre- or post-purchase) at work.[172] Justice Scalia echoed this

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quirement does not fully define that requirement, but he is apparently arguing for a stronger conception of causation than that discussed *infra* part IV.B.2. However, Professor Jacobs admits that *Kodak* does not support his view: "*Kodak*'s silence on this point leads logically to an inference that causation [in creation of information gaps] does not matter and that a firm can derive 'market power' even from structural information gaps." Jacobs, *supra* note 3, at 371.

In any event, Professor Jacobs's primary concern appears to be that firms in markets where there are structural market imperfections "have had market power 'thrust upon' them; their mere presence in a particular kind of market accounts for their 'power,' which they can discard only by abandoning that market." *Id.* at 371-72. But his conclusion does not follow from his premise. Although it may be true that there are markets in which firms will necessarily have market power, it does not follow that to avoid antitrust liability those firms must leave those markets. No case suggests that information gaps in themselves will create antitrust liability. Liability arises only when information deficiencies, and the market power derived from them, are used to perform some act, such as tying, forbidden by the antitrust laws. A firm with structural information-based market power can avoid antitrust liability simply by avoiding the limited number of practices that the antitrust laws prohibit.

170. *Jefferson Parish*, 466 U.S. at 5-7.

171. *Id.* at 28.

172. The *Jefferson Parish* Court's impression of consumer indifference is understandable when the case's prior history is considered. The Court made its statements on this issue in the context of the conclusion of the court of appeals regarding the "market imperfections" in the medical services market. *See supra* text accompanying note 167. But the court of appeals had not emphasized a lack of information at all. Instead, it focused on two other factors: consumer indifference to price due to third-party payment and consumer preference for non-profit institutions due to an expectation that such institutions would be less likely to skimp on quality. Hyde v. Jefferson Parish Hosp. Dist. No. 2, 686 F.2d 286, 290 (5th Cir. 1982), *rev'd*, 466 U.S. 2 (1984). In light of these factors, it concluded that consumers chose hospitals largely based on location. *See id.* at 290-91. The court of appeals did observe that there was "a lack of complete information regarding the quality of medical care offered." *Id.* at 290. However, it is not clear what significance the court accorded this fact, in that it also said that the district court's conclusion had been that patients chose hospitals based on location "for the convenience of the family," *id.*, not due to a lack of information.

view in his *Kodak* dissent, where he cited *Jefferson Parish* in arguing that the Court had "never suggested that the principal players in a market with such commonplace informational deficiencies (and, thus, bands of apparent consumer pricing indifference) exercise market power in any sense relevant to the antitrust laws."[173] This extrapolation from *Jefferson Parish* to *Kodak* was inappropriate, though; even if consumer indifference was a plausible possibility in *Jefferson Parish*, it was not in *Kodak*.

Although consumers of anesthesiological (and hospital) services in *Jefferson Parish*, like consumers of repair services in *Kodak*, could generally determine the value of those services only through experiencing them,[174] the buyers in *Jefferson Parish*, unlike those in *Kodak*, were not locked in after obtaining information through experience. After a first treatment by a particular hospital-anesthesiologist package, in which the quality of the providers was experienced, a patient who needed such services again could make the choice to receive the future services at a different hospital, where she could obtain the services of a different anesthesiologist.[175] In other words, patients in *Jefferson Parish* had no switching costs.

The absence of switching costs is essential, because, as described above,[176] only in the presence of switching costs do information costs have antitrust significance. The lack of switching costs makes the *Jefferson Parish* Court's statements regarding "indifference" accurate. Prior to obtaining information regarding anesthesiology services, the buyer might indeed have been indifferent among anesthesiologists, as

173. *Kodak*, 112 S. Ct. at 2097-98 (Scalia, J., dissenting). Justice Scalia did not explain how one distinguishes between "commonplace" information deficiencies and those of antitrust significance.

174. The Fifth Circuit noted the lack of available information regarding medical services. *Jefferson Parish*, 686 F.2d at 290.

175. This statement refers primarily to relatively minor difficulties with anesthesiology services, such as, for example, a patient's dissatisfaction with her pre- and post-operative contact (or lack of contact) with the anesthesiologist. In most cases, little cost would be incurred in correcting such problems by switching to another anesthesiologist and hospital if an additional operation were required. (This might not be true, however, if the patient's physician did not have staff privileges at another hospital, so that to switch the patient would be required to incur the costs of obtaining and establishing a relationship with a new doctor, or if the patient's condition were serious enough that she could not be moved. In such circumstances, the difficulty of moving to another hospital *could* create switching costs.) Other difficulties with anesthesiology services can, of course, cause very serious medical problems that cannot be remedied by switching to an alternative anesthesiologist. Assuming that one wants to apply economic analysis to such problems, it is still true that even very serious health problems generally would not (with the second exception noted above) increase switching costs; they would instead be an example of experiencing exceedingly high information costs.

176. *See supra* text accompanying notes 120-23.

Kodak equipment purchasers would have been among service organizations in the absence of analogous information. However, in each case, consumers after experiencing the services at issue might no longer have been indifferent, and it is at that point that the two cases differ. After patients in *Jefferson Parish* had experienced the services of the hospital-affiliated anesthesiologists, they would have been able to exercise their preferences by switching to other providers. Kodak equipment owners, though, would have been unable to switch to another brand of service without incurring switching costs, even after ascertaining that they did not want Kodak service.[177] Hence, the Supreme Court was right both in dismissing concerns about information costs in *Jefferson Parish* and in relying on the importance of such concerns in *Kodak*.[178]

2. Information-Based Market Power and the Chicago School

In its focus on the consumer's decision-making process, the approach to market power presented in this Article has a narrower

177. If, contrary to the statements above, there had been switching costs in *Jefferson Parish*, the same competitive problems as in *Kodak* would have existed. That could have been the case, for example, if patients of the defendant hospital were frequently subjects of multiple operations, and changes from one hospital to another during the course of those operations would have created difficulties. In that case, the difficulties of changing from one hospital to another would have constituted switching costs, and the patients could indeed have been forced by the tie (and by the information and switching costs) to use anesthesiologists whom they did not want. In such circumstances, the tie should be treated as anticompetitive on the same basis as that in *Kodak*, *i.e.*, if the information-based market power of the seller is of sufficient magnitude and character to meet the market power test described previously.

One other circumstance that might create an information-cost problem in the *Jefferson Parish* context should perhaps be noted. If a buyer had previously received anesthesiology services from, or was otherwise familiar with, a particular anesthesiologist, the hospital's requirement that she use an anesthesiologist from its group, one with which she was not familiar, would make it more difficult for the buyer to evaluate the services that she would be likely to receive. This might impose information costs on the buyer, but they are information costs that should not be a subject of antitrust concern. In many circumstances, there will be particular buyers who have specific reasons for desiring a particular selling arrangement. The antitrust laws, however, are not concerned with such unique needs; they are concerned only with broader market considerations. *See* Grappone, Inc. v. Subaru of New England, Inc., 858 F.2d 792, 796-97 (1st Cir. 1988).

178. The references to "indifference" in this discussion refer to indifference between two goods whose effective prices cannot be precisely determined, not to indifference regarding price in general. The latter is true indifference, but the former is "indifference" forced on the buyer by a lack of information. There is some ambiguity in the *Jefferson Parish* opinion regarding this distinction. Forced indifference between two products was at issue in the Court's discussion of consumers' inability to distinguish the quality of alternative sources of medical services, but the Fifth Circuit also discussed consumers' true indifference regarding price deriving from the payment of their medical bills by insurers. *See* Hyde v. Jefferson Parish Hosp. Dist. No. 2, 686 F.2d 286, 290 (5th Cir. 1982), *rev'd*, 466 U.S. 2 (1984).

applicability than traditional tying doctrine. The approach here does not address tying arrangements that are coercive in the traditional sense of forcing consumers who are fully informed about their alternatives to accept a disfavored alternative.[179] The goal of the present approach is only to ensure that sellers do not define their products in such a way as to make it more difficult for consumers to obtain and use information regarding those products. Because the means by which such product definition occurs in a tying case is through the tie itself, a peculiar circumstance arises: An information-based tie, though a *product* of market power to the extent that consumers are made to accept it, is also itself a *source* of market power through its creation of uncertainty. Although it may seem odd that the same tying arrangement could simultaneously create and exploit market power, the idea is less surprising when one looks at a tie as a means for the seller to define its product, and the information available concerning it, in a particular way.

The tie allows the seller to transform what would otherwise be short-term uncertainty regarding the value of the tied product into long-term uncertainty regarding the tying-tied product combination. By defining the product combination to require use of the tied product for the entire useful life of the tying product, preventing the buyer from switching to an alternative after a short experience with the tied product, the seller amplifies any uncertainty in the tied product's value. Referring back to Table 1, where Kodak equipment was assumed to have a useful life of ten years, the seller increased what would otherwise have been the uncertainty of, for example, a one-year service contract, by ten times. The resulting increase in information-based market power is thus a direct result of the tie.

Notably, this effect distinguishes information-based ties from the tying arrangements assumed by Chicago School tying analysis, and in fact renders the condemnation of information-based ties consistent with the Chicago analysis. The Chicago approach to ties[180] is based on the unstated assumption that imposition of a tie does not affect the seller's market power, because that power is founded in the tying product market. The seller's imposition of the tie, the argument runs,

179. *See supra* notes 32, 54.

180. The Chicago School approach to ties was first systematically set out in Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19 (1957), and it has since been applied frequently by Chicago adherents to criticize antitrust tying law. *See, e.g.*, ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 365-81 (1978); Frank H. Easterbrook, *Vertical Arrangements and the Rule of Reason*, 53 ANTITRUST L.J. 135, 143-45 (1984); Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 926 (1979).

is only one means among many of exercising the constant and preexisting market power of the seller.[181] For example, the seller could, instead of imposing a tie, simply use its market power to raise the price of the tying product; if it instead chooses to impose a tie, it will make the product less attractive to buyers and will therefore no longer be able to raise the price, or will not be able to raise it as high.[182] The Chicago analysis then argues that one means of exercising market power is much like another, so that the antitrust laws should not treat tying differently from a permissible practice such as a direct price increase.[183]

Although this final step in the Chicago argument, asserting that sellers should be permitted to exploit their market power over buyers in any way they choose, is debatable,[184] even those who accept that view presumably do not approve of practices that increase a seller's market power.[185] Hence, even adherents of the Chicago analysis should concede that it does not apply to tie-ins that create market power (as distinguished from those that merely exploit it). In some circumstances—one of them being an aftermarket tie in the face of uncertainty—a seller can have more market power in the combination of tying and tied product than he would have had in the tying product alone. This is so because, as described above, by selling the primary market (tying) product with an aftermarket (tied) product whose value is uncertain, the seller imports the uncertainty into the sale of

181. *See* Easterbrook, *supra* note 180, at 143-44 ("The seller can take its monopoly profit only once.").

182. *See* BORK, *supra* note 180, at 372-74; Posner, *supra* note 180, at 926 ("[A]n increase in the price charged for the tied product will, as a first approximation, reduce the price that the purchaser is willing to pay for the tying product.").

183. The view that ties cannot cause any more harm in the market than would a direct price increase is actually held only by the more strict Chicago advocates. *See* BORK, *supra* note 180, at 374-75 (rejecting possibility that ties could raise entry barriers in the tied product market); Easterbrook, *supra* note 180, at 144-45 (arguing that the entry barriers from ties "are sufficiently rare that they cannot support any presumption against (or even suspicion of) the practices"). Other, less doctrinaire Chicago scholars are willing to consider the possibility that ties could cause competitive harm. *See infra* note 185.

184. *See generally* Keith K. Wollenberg, *An Economic Analysis of Tie-In Sales: Re-examining the Leverage Theory*, 39 STAN. L. REV. 737, 753-56 (1987) (discussing possible procompetitive and anticompetitive effects of ties).

185. For example, Judge Posner, like other Chicago adherents, rejects the leverage theory of ties. *See supra* note 180 (citing sources). Instead, he has described price discrimination among buyers, which is competitively more benign, as the primary effect (and purpose) of ties. Posner, *supra* note 180, at 926. Judge Posner observes, however, that, contrary to the initial Chicago view, the price-discrimination effects of tie-ins can cause greater market misallocation than would a simple single-price monopoly. *Id.* at 934-35. He therefore seems willing at least to consider that ties might be anticompetitive: "In the light of such criticism, the original Chicago analysis of the effects of tie-ins now seems a little oversimple." *Id.* at 935.

the two-product combination,[186] thus creating market power. Because the creation of market power *as a result of* a tie is contrary to the assumption of constant and preexisting market power on which the Chicago analysis rests, that analysis is inapplicable in these circumstances.

3. The Supreme Court and Market Information

The particular characteristics of information-based aftermarket ties distinguish them from "traditional" ties and link them with some other superficially different cases. Whereas typical ties operate by forcing buyers knowingly to accept unwanted products, information-

186. It might be argued that if the additional market power in this arrangement derives from uncertainty related to the aftermarket product, perhaps it is that aftermarket product, rather than the primary market product, that should be considered the tying product. After all, if the primary market (tying) product has no market power in itself, how can it force a buyer to take an undesired aftermarket product? The answer lies in the relationship between the primary and aftermarkets. Because purchasers of primary market products are also committing to later purchases of aftermarket products, uncertainty with respect to the aftermarket is also felt as uncertainty in the primary market. Therefore, some buyers, with incomplete information, will purchase the primary market product—in *Kodak*, Kodak equipment—when they would not otherwise have done so, or would have done so only at a lower price. This is exactly the point emphasized by the *Kodak* Court in its discussion of the difficulty of lifecycle pricing. 112 S. Ct. at 2085. Recall that the view expressed in *Kodak* was that consumers would find it difficult to determine the overall cost of the equipment-and-parts-and-service package, which would cause "a less responsive connection between service and parts prices and equipment sales." *Id.* at 2085. Moreover, some uncertainty will derive from the tying product, but be exploitable only through control of the tied product, so that market power derived from that uncertainty will also be a product of the tie. That was the case, for example, for equipment reliability in *Kodak.* Costs that were the product of the combination of unanticipatedly low equipment reliability and the cost difference between Kodak and ISO service were products of the tie, and should therefore be included in the experience cost measure in Figure 4. These costs result because if reliability is low, service is needed frequently, and any differences in service cost or quality provided by different service organizations are magnified.

The primary market is also central because if the buyer can freely switch to another brand of aftermarket service, information-based market power cannot be exploited. (At least, it cannot be fully exploited. As *Kodak* pointed out, Kodak could have lost some customers while still obtaining sufficient supracompetitive prices from its remaining customers to make its tying practice profitable. *See id.* at 2084.). An aftermarket tie requires switching costs. *See supra* text accompanying notes 120-23. Although such costs might be present in small amounts even in the aftermarket alone (a Kodak equipment owner would sacrifice some investment in switching to ISO service merely by abandoning a Kodak maintenance agreement), they are made much greater by imposing a tie, because, to switch then, the buyer must abandon the primary market product. Hence, the seller uses the tie to ensure that the buyer is locked in to the expensive primary market product. In this role, that primary market product clearly serves a tying function: it is the buyer's investment in Kodak equipment that forces it to remain with Kodak service. Thus, although the market power in an aftermarket tie ultimately derives from information gaps in the aftermarket, and is most easily measured in that market, the power is also present in, and in fact is actually exercised in, the primary market.

based ties achieve their coercive effect by forcing buyers to make purchasing decisions on the basis of limited information.[187] In this way, aftermarket ties are in some respects similar to other, more explicit actions by sellers to restrict the information available about their products. As the paragraphs below describe, the Supreme Court has considered several of these other information-restricting efforts, and it has treated them quite severely. Therefore, the claim that *Kodak* is unprecedented among the Supreme Court's decisions,[188] though strictly true in that the Court has not reached a similar conclusion in a tying case, seems inaccurate when considered in the context of the Court's decisions in its other information-related cases.

In *National Society of Professional Engineers v. United States*,[189] the Court considered a Justice Department challenge to an "ethical" rule of the National Society of Professional Engineers that required its members to make their initial project proposals to potential clients without price information and to reveal prices only after the engineers were chosen for jobs (at which point clients could withdraw and begin the selection process again).[190] The Supreme Court took pains to emphasize that the society's rule did not fix prices.[191] The rule's restraint

187. Some of the mechanisms through which this occurs are described in Grimes, *supra* note 4, at 272-82.

188. *See supra* note 5 and accompanying text.

189. 435 U.S. 679 (1978).

190. Specifically, the society's rule required that proposals to customers by member engineers be submitted without price information; if a potential client insisted on price information, the engineer was to withdraw from consideration for the job. *Id.* at 683-84. An engineer could negotiate with a client over price, but only after she was chosen for the job. *Id.* at 684 n.6. If no agreement were reached, the client could then withdraw from the negotiations with that engineer and choose a new one to begin the process again. *Id.*

191. *Id.* at 692 ("While this is not price fixing as such, no elaborate industry analysis is required to demonstrate the anticompetitive character of such an agreement."). The district court had treated the case as one of price-fixing. United States v. National Soc'y of Professional Eng'rs, 404 F. Supp. 457, 460 (D.D.C. 1975), *aff'd*, 555 F.2d 978 (D.C. Cir. 1977), *aff'd*, 435 U.S. 679 (1978). That is, the court looked at the case largely from the seller's point of view, noting that the rule "tends to 'cripple the freedom of traders and thereby restrain[s] their ability to sell in accordance with their own judgment.' " United States v. National Soc'y of Professional Eng'rs, 389 F. Supp. 1193, 1200 (D.D.C. 1974) (quoting Kiefer-Stewart Co. v. Seagram & Sons, 340 U.S. 211, 213 (1951)), *vacated and remanded*, 422 U.S. 1031 (1975), *original judgment reaffirmed after remand*, 404 F. Supp. 457 (D.D.C. 1975), *aff'd*, 555 F.2d 978 (D.C. Cir. 1977), *aff'd*, 435 U.S. 679 (1978)). It did, however, note that the "prospective client is thus forced to make his selection without all relevant market information." *Id.* The court of appeals emphasized this informational aspect of the case, stating that "[d]efendant's prohibition of competitive bidding, by blocking the free flow of price information, strikes at the functioning of the free market." United States v. National Soc'y of Professional Eng'rs, 555 F.2d 978, 981 (D.C. Cir. 1977), *aff'd*, 435 U.S. 679 (1978). Furthermore, the court focused on the *process* of communicating and evaluating prices. It disapproved of the Society's rule in part because "[i]t does not take into account the sophistication of the purchaser, the complexity of the project, or the pro-

on information was, however, an obstacle to the competitive process. The Court said that "the [bidding] ban 'impede[d] the ordinary give and take of the market place,' and substantially deprive[d] the customer of 'the ability to utilize and compare prices in selecting engineering services.' "[192] Therefore, the rule "[o]n its face" restrained trade within the meaning of Section 1 of the Sherman Act.[193]

Professional Engineers involved a restraint on price information, which the Court could have been expected to treat harshly,[194] but the Court has been no more accepting of restrictions on the provision of non-price information. In *FTC v. Indiana Federation of Dentists*,[195] a group of dentists agreed collectively to resist requests by dental insurers to provide x-rays for use in evaluating treatments.[196] The Court had no difficulty in deciding that the practice was anticompetitive:

> A concerted and effective effort to withhold (or make more costly) information desired by consumers for the purpose of determining whether a particular purchase is cost-justified is likely enough to disrupt the proper functioning of the price-setting mechanism of the market that it may be condemned even absent proof that it resulted in higher prices or, as here, the purchase of higher priced services, than would occur in its absence.[197]

Tellingly, much of this passage could also have been applied to the *Kodak* facts: Kodak's definition of its product to effectively require future parts and service purchases of uncertain cost could also be described as an "effort to . . . make more costly . . . information desired by consumers for the purpose of determining whether a particular purchase is cost-justified."

Although it may seem a stretch to compare a vertical restraint like Kodak's tying arrangement to the horizontal restraints in *Professional Engineers* and *Indiana Federation of Dentists*, the Court's rationales in these cases are similar. In *Professional Engineers* and *Indiana Federation of Dentists*, the Court did not focus so much on the acts of

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cedures for evaluating price information." *Id.* at 982. Thus, the court of appeals, like the Supreme Court, focused on the buyer, not the seller.

192. *Professional Eng'rs*, 435 U.S. at 692-93 (quoting United States v. National Soc'y of Professional Eng'rs, 404 F. Supp. 457, 460 (D.D.C. 1975), *aff'd*, 555 F.2d 978 (D.C. Cir. 1977), *aff'd*, 435 U.S. 679 (1978)).

193. *Id.* at 693.

194. As the Court reaffirmed in *Professional Eng'rs*, "[p]rice is the 'central nervous system of the economy.' " *Id.* at 692 (quoting United States v. Socony-Vacuum Oil Co., 310 U.S. 150, 226 n.59 (1940)).

195. 476 U.S. 447 (1986).

196. *Id.* at 449-51.

197. *Id.* at 461-62.

the sellers in agreeing to restrict information as on the effect of those agreements on the decision-making of buyers. Thus, in *Professional Engineers*, the Court emphasized that the defendants' actions were not price-fixing but nevertheless "deprive[d] the customer of 'the ability to utilize and compare prices' ";[198] similarly, in *Indiana Federation of Dentists*, the defendants' actions "disrupt[ed] the proper functioning of the price-setting mechanism of the market."[199] The ability to disrupt the market's price-setting mechanism is, of course, market power.[200] Thus *Professional Engineers* and *Indiana Federation of Dentists* recognized that price can be raised by restricting available information as well as by controlling price directly.[201] Similarly, the tie in *Kodak* was imposed by making information regarding the costs of a tie more difficult to obtain rather than by directly forcing consumers to accept the tie. In a sense, therefore, *Professional Engineers* and *Indiana Federation of Dentists* were analogous to traditional price-fixing cases in the same way that *Kodak* was to a traditional tying case. Not surprisingly, the Court consistently held in all three cases that a seller may not accomplish indirectly through information restrictions what it would not be permitted to accomplish directly through the exercise of other forms of market power.

4. Legitimate Business Justifications

Although tie-ins remain nominally *per se* violations of the antitrust laws, the Supreme Court has in the past accepted[202] and contin-

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198. *Professional Eng'rs*, 435 U.S. at 692-93 (quoting United States v. National Soc'y of Professional Eng'rs, 404 F. Supp. 457, 460 (D.D.C. 1975), *aff'd*, 555 F.2d 978 (D.C. Cir. 1977), *aff'd*, 435 U.S. 679 (1978)). *See supra* text accompanying notes 192-93.

199. *Indiana Federation of Dentists*, 476 U.S. at 461-62. *See supra* text accompanying note 197.

200. *See supra* note 54.

201. *See* Lande, *supra* note 126, at 195 ("Imperfect information can be the equivalent of traditional market share-based market power.").

Commentators have discussed the relationship of other information-related practices and market power. *See* Beales et al., *supra* note 89, at 509 (discussing relationship between advertising and market power); Clark C. Havighurst & Nancy M.P. King, *Private Credentialing of Health Care Personnel: An Antitrust Perspective* (parts 1 & 2), 9 AM. J.L. & MED. 131, 9 AM. J.L. & MED. 264 (1983) (contending that medical specialty certification, nominally an information-providing activity, is actually designed to resist pressures from both outside and inside the profession to provide information that would allow consumers to differentiate among physicians); Mark R. Patterson, *Antitrust Liability for Collective Speech: Medical Society Practice Standards*, 27 IND. L. REV. 51 *passim* (1993) (arguing that medical societies' statements to the public and insurers regarding particular medical practices can be used to disadvantage competitors).

202. *See* United States v. Jerrold Elecs. Corp., 187 F. Supp. 545, 558-61 (E.D. Pa. 1960), *aff'd per curiam*, 365 U.S. 567 (1961).

ues to consider[203] benefits provided by a tie as factors to consider in determining its legality. Perhaps the most frequently offered justification for tying arrangements is that they allow the manufacturer to maintain the quality of its products by controlling the quality of the other products or services that are used with them. The difficulties just pointed out regarding manufacturer control of product information suggest, however, that the informational effects of quality claims should be closely scrutinized.

For example, Kodak stated that "by preventing customers from using ISOs, 'it [can] best maintain high quality service for its sophisticated equipment' and avoid being 'blamed for an equipment malfunction, even if the problem is the result of improper diagnosis, maintenance or repair by an ISO.' "[204] The Court did not consider this justification in the context of the ISOs' tying claim under Section 1 of the Sherman Act, presumably because of that claim's *per se* character,[205] but it did discuss a quality justification with regard to the related Sherman Act Section 2 monopolization claim.[206] The Court held that the quality argument did not preclude the monopolization claim for two reasons. First, the respondents offered evidence that the "ISOs provide quality service and are preferred by some Kodak equipment owners."[207] Second, the Court questioned Kodak's contention that its equipment owners would be unable to assess the relative quality of Kodak and ISO service.[208]

The first point raised by the Court addressed Kodak's claim as a product justification: As a factual matter, did Kodak service really improve the overall quality of the product?[209] The Court rejected Ko-

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203. *See Kodak*, 112 S. Ct. at 2088:

> We need not decide whether Kodak's behavior has any procompetitive effects and, if so, whether they outweigh the anticompetitive effects. We note only that Kodak's service and parts policy is simply not one that appears always or almost always to enhance competition, and therefore to warrant a legal presumption without any evidence of its actual economic impact.

204. *Id.* at 2091 (quoting Petitioner's Brief on the Merits at 6-7, Eastman Kodak Co. v. Image Technical Servs., Inc., 112 S. Ct. 2072 (1992) (No. 90-1029)).

205. *See supra* note 203.

206. *Kodak*, 112 S. Ct. at 2091-92.

207. *Id.* at 2091.

208. *Id.*

209. Sellers seem to make this claim reflexively, regardless of its merits. For example, the author has heard it made by a manufacturer of safety-related products, where quality would, of course, be of special importance. The manufacturer claimed that the purpose of its refusal to sell parts to ISOs and its requirement that buyers who needed parts for their systems buy them through it, rather than through ISOs, was to ensure that they were ordering the proper parts for their systems. (The ISOs claimed that the policy was instituted merely to make ISO repair services more difficult to perform.) The manufacturer said that its policies furthered this goal because it could cross-check the part ordered with the manu-

dak's argument that this justification precluded liability at summary judgment because, it said, its truth was a question of fact.[210] The reasons for rejecting the argument are even stronger. The basic assumption of the antitrust laws is that consumers should be left to choose the products that they wish to purchase, and the laws generally reject sellers' attempts to dictate those choices.[211] That should be as true where the restraint at issue is a tie as when it involves an agreement among suppliers. In fact, in both contexts the Court has said that quality justifications will not be permitted. In *National Society of Professional Engineers v. United States*,[212] where a group of professionals agreed to restrict their bidding practices, the Court firmly rejected their argument that the agreement was necessary to maintain quality and safety: "The assumption that competition is the best method of allocating resources in a free market recognizes that all elements of a bargain—quality, service, safety, and durability—and not just the immediate cost, are favorably affected by the free opportunity to select among alternative offers."[213] The Court took a similar view in the tying context of *Jefferson Parish*, where it considered the possibility that the defendant hospital might have required that patients use particular anesthesiologists for reasons of quality, but "reject[ed] the view . . . that the legality of an arrangement of this kind turns on whether it was adopted for the purpose of improving patient care."[214] The rejected quality claims in *Professional Engineers* and *Jefferson Parish* were just as plausible as the claim in *Kodak*, so the *Kodak* justification should have met with a similarly rapid dismissal without inquiry into its factual basis.

The Court's second rationale regarding the Kodak claim was more supportable. It is indeed important that consumers be able to assess the quality implications of the products that they buy. Therefore, any actions that sellers take to make that choice easier should be encouraged, but such actions would include only those that conveyed information, not those that dictated a particular quality level. Kodak's tie of service to parts and equipment did not meet that criterion. The *Kodak* tie incorporated none of the risk-sharing aspects that could

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facturer's record of the exact equipment owned. When asked by its attorneys whether it actually performed the claimed cross-checking, however, the manufacturer replied that it did not.

210. *Kodak*, 112 S. Ct. at 2091.

211. *See supra* notes 31-32 and accompanying text.

212. 435 U.S. 679 (1978).

213. *Id.* at 695.

214. Hyde v. Jefferson Parish Hosp. Dist. No. 2, 466 U.S. 2, 25 n.41 (1984).

have provided a signal to help buyers judge quality.[215] In order to provide a signal of quality useful to its buyers, Kodak would have had to assume some of the financial risk of providing service to them,[216] but it did not; on the contrary, any lack of equipment quality or service would have been fully felt by Kodak equipment owners in increased service costs or decreased productivity. If Kodak had truly intended to *inform* consumers regarding the quality of its products, rather than to force them to buy products of a particular quality, it would have provided a warranty[217] or offered some other purchase plan that served an informational role. Merely requiring buyers to use Kodak service, at whatever price Kodak chose to charge for it, hardly served Kodak's stated goal of improving buyers' ability to compare Kodak and ISO service.

V. Other Information-Based Restraints

The preceding sections of this Article have focused almost exclusively on *Kodak.* To place the discussion in a broader context, this part discusses a variety of cases that presented potentially anticompetitive problems analogous to those in *Kodak.* In only one such case, however, was this anticompetitive potential realized, because in only that case, described in the first section below, were both information and switching costs present.[218] The remaining three sections discuss circumstances in which, despite some similarities to *Kodak*, there was an absence of switching costs, or of information costs, or of both. In

215. *See* Wollenberg, *supra* note 184, at 753-56 (discussing quality control and risk-sharing as an explanation for tying arrangements).

216. The theory of "signaling" has been discussed in detail by Michael Spence. *See* A. Michael Spence, Market Signaling: Informational Transfer in Hiring and Related Screening Processes (1974); Spence, *supra* note 68. Signals, according to Spence, are "activities or attributes of [sellers] in a market which, by design or accident, alter the beliefs of, or convey information to, [buyers] in the market." Spence, *supra*, at 1. The example that he discusses most extensively is that of educational level and performance as a signal of worker productivity. *Id.* at 14-30. He develops a model that demonstrates that under certain assumptions educational achievement can serve as an effective signal for both buyer and seller, even if neither actively seeks to use it as such. But "[t]he critical assumption is that the costs of acquiring [the characteristic that is the signal] are negatively correlated with the individual's productive capability with respect to some job." *Id.* at 15. This condition is a necessary one; if it is absent, those sellers who have less of whatever attribute it is that buyers truly desire will be able to send the signal as effectively (cheaply) as those buyers prefer, and the signal will be useless. In education, the costs associated with acquiring the signal are the expense and effort required to attain a high educational level. For Kodak, the same role would have to be played by some characteristic of the tie that would impose higher costs on Kodak if its product quality was low.

217. *See infra* text accompanying notes 275-77.

218. The relative rarity of such cases suggests that commentators' claims that *Kodak* opened up vast new vistas of liability, *see supra* note 7, are exaggerated.

none of these circumstances, therefore, was there a danger of information-based market power, though the plaintiffs in some cases brought *Kodak*-based claims.

A. Virtual Maintenance: *Information and Switching Costs*

As described above,[219] an information restraint creates market power only if it causes buyers to face both information and switching costs. I am aware of only one reported case, in addition to *Kodak*, in which both costs appeared to be present. That case is *Virtual Maintenance, Inc. v. Prime Computer, Inc.*,[220] which was vacated by the Supreme Court for reconsideration in light of *Kodak*.[221] The defendant in *Virtual Maintenance*, Prime Computer, Inc., manufactured computer systems and provided hardware maintenance for those systems, one of which was known as the 50 Series.[222] Ford Motor Company had developed a computer program, called PDGS, to aid in the design of Ford's products; Ford's own version of PDGS ran only on Prime 50 Series computers.[223] Ford licensed Prime as the exclusive distributor of a modified version of PDGS to Ford's suppliers, whom it required to use PDGS.[224] Prime was also responsible for distributing PDGS software updates, which Ford required its suppliers to use.[225] Prime offered the software support as a package with Prime's own hardware maintenance services for the 50 Series computers for $16,000 per year; PDGS users could also purchase the software support separately, but only at a cost of more than $80,000.[226] The plaintiff, an ISO, sued Prime, claiming that Prime's policy of making PDGS software support available by itself only at a price prohibitively higher than that of the software support with hardware maintenance was in effect a tie, and was illegal.[227]

The ISO's claim in *Virtual Maintenance* was analogous to the ISOs' claims in *Kodak*, with the Prime 50 Series computers occupying the role of Kodak equipment, PDGS software updates playing the role of Kodak parts, and the tied product in both cases being hardware maintenance services. In its first consideration of the case, the Sixth

219. *See supra* text accompanying notes 120-23.

220. 957 F.2d 1318 (6th Cir.), *vacated*, 113 S. Ct. 314 (1992), *decision on remand*, 995 F.2d 1324 (6th Cir. 1993).

221. *See* Virtual Maintenance, Inc. v. Prime Computer, Inc., 113 S. Ct. 314 (1992).

222. *Virtual Maintenance*, 957 F.2d at 1321.

223. *Id.* at 1321-22.

224. *Id.* at 1322.

225. *Id.*

226. *Id.*

227. *Id.*

Circuit rejected Virtual's claims on the basis that a single brand could not constitute a relevant antitrust market.[228] On remand, the court recognized that *Kodak* had rejected its earlier view,[229] and it examined the factual circumstances of the markets at issue. In considering switching costs, the court observed that Ford suppliers were locked in to their Prime 50 series computers and training, citing expert testimony that most of a supplier's investments "would be substantially worthless if the [supplier] switched to another manufacture[r]'s system."[230] Although the court should then have addressed the information costs faced by the suppliers, it did not, instead obliquely indicating that it did not consider such costs relevant because "the initial decision to purchase Prime equipment and software was made by a single consumer, Ford."[231]

Contrary to the *Virtual Maintenance* court's statement, though, information costs did present a problem for the Ford suppliers. The court's statement that Ford made the initial purchasing decision is true, but it does not answer the relevant question. Although Ford made the initial decision to *require* Prime equipment,[232] each supplier made its own individual decision to purchase that equipment, based on its expectations regarding the equipment's likely expense and the expected revenues from Ford. The Ford suppliers were thus in exactly the same situation as Kodak equipment buyers. Like buyers of Kodak equipment, buyers of Prime 50 series computers and Ford-approved PDGS software were forced to use hardware maintenance of uncertain cost provided by the hardware manufacturer, at the alternative of an expensive switch to another brand of equipment (or, in *Virtual Maintenance*, abandonment of Ford as a customer[233]).[234] Both information and switching costs were present, so the trial court in *Virtual*

228. *Id.* at 1326-29.

229. Virtual Maintenance, Inc. v. Prime Computer, Inc. 995 F.2d 1324, 1329 (1992).

230. *Id.* at 1330.

231. *Id.* at 1329.

232. Although the ISO's claim in *Virtual Maintenance* was apparently based on business that it lost from Ford suppliers, rather than from Ford itself, Ford was in much the same position as its suppliers with regard to switching and information costs. The court noted that Ford also felt locked in to its choice of Prime, because it too had made considerable investments in both the software and the equipment. *Id.* at 1330. Ford also faced the same information costs faced by its suppliers, both directly, to the extent that it was forced to comply with Prime's marketing policy, and indirectly, through costs passed through its suppliers. However, because Ford's overall costs for its Prime systems included the amounts it spent in developing PDGS, its information costs were probably a smaller fraction of its total costs than they were for its suppliers. An information-cost claim by Ford would therefore probably have been less successful than one by the suppliers.

233. Ford suppliers, if dissatisfied with Prime hardware maintenance and unwilling to pay the price of obtaining PDGS support alone, could have continued to use their Prime

Maintenance, like that in *Kodak*, should determine whether the costs were sufficient to create market power.[235]

B. The Importance of Switching Costs

As described earlier,[236] the Supreme Court's rejection of an information-cost argument in *Jefferson Parish Hospital District No. 2 v. Hyde*[237] was appropriate because switching costs were absent in that case. Although *Jefferson Parish* did not involve an aftermarket tie like that in *Kodak*, the importance of switching costs is quite general. The first section below discusses a case much like *Kodak*, but in which switching costs were absent, so that no information-based market power was created. The subsequent section extends the principles discussed in this Article from tie-ins to nonprice vertical restraints, a related area in which the competitive effects of the restraints depend on the presence of switching costs.

1. Aftermarket Tying Without Switching Costs

Data General Corporation, a computer manufacturer, has used a hardware maintenance policy that is similar in some respects to Kodak's, and Data General's policy has also been the subject of litigation.[238] Like Kodak, Data General provided hardware maintenance and repair for its equipment, and faced competition from ISOs.[239] In

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computers for other purposes, but they could not have continued to supply products to Ford. *See supra* text accompanying note 225.

234. There is one possible distinction between *Virtual Maintenance* and *Kodak*, however. As noted *supra* in the text accompanying note 226, the annual price of the software support-hardware maintenance package was $16,000. If that was a fixed price that covered any maintenance needed by Prime's customers, it would have reduced considerably the uncertainty associated with the tied package. *See supra* part IV.B.3. It is more likely, though, that $16,000 was the price for software support only, on the condition that customers used Prime maintenance. In that case, the customers would have been subject to the full uncertainty regarding Prime's maintenance quality and cost, and the case would have been strictly like *Kodak*.

235. On calculating information-based market power, see *supra* part IV.A.2.

236. *See supra* part IV.B.1.

237. 466 U.S. 2 (1984).

238. Data General's policy has been litigated in Maryland and Massachusetts. The Maryland case is reported at Service & Training, Inc. v. Data Gen. Corp., 963 F.2d 680 (4th Cir. 1992). The Massachusetts case, in which the author was involved, is reported at Data Gen. Corp. v. Grumman Sys. Support Corp., No. 93-1637, 1994 U.S. App. LEXIS 25459 (1st Cir. Sept. 14, 1994). Both courts of appeals rejected antitrust liability, but on grounds different from those disscussed here. Specifically, each decided that there was insufficient evidence that any Data General computer owner's failure to use ISO service was the product of an agreement not to do so, as required by Sherman Act § 1, to take the case the case to trial under that section. *See Service & Training*, 963 F.2d at 686; *Data Gen.*, No. 93-1637, 1994 U.S. App. LEXIS 25459 at *104-09.

239. *Service & Training*, 963 F.2d at 682.

the course of developing a series of computers designated the MV series, Data General had also developed a computer program, called MV/ADEX, useful in diagnosing problems in the computers.[240] Data General used MV/ADEX when providing hardware maintenance for its customers, but it did not license MV/ADEX for use by ISOs.[241] The ISOs claimed, therefore, that Data General was tying its hardware maintenance to MV/ADEX,[242] which they alleged was very valuable for MV service.[243]

The *Data General* cases are similar to *Kodak*, with MV/ADEX playing the tying-product role of Kodak parts. However, there is an essential difference between the two cases. In *Kodak*, because Kodak parts were unique and were necessary for the operation of Kodak equipment,[244] equipment owners had no choice but to continue purchasing those parts. They were therefore forced to accept the tie of parts to service as long as they owned Kodak equipment; they could not switch from Kodak service without switching to another brand of equipment. In *Data General*, though, the MV/ADEX diagnostic program was not necessary for the operation of Data General MV computers.[245] MV/ADEX's usefulness in servicing Data General computers may have made it less desirable for the computer owners to switch to ISO service, but they could have done so without switching to another brand of equipment, unlike Kodak owners.[246] Giving up the use of MV/ADEX was merely the price that Data General computer owners paid for the lower cost of ISO service. If at any time those owners decided that the overall ISO service package (without MV/ADEX) was more attractive than the Data General package (with MV/ADEX), they were free to switch. Therefore, as in *Jefferson Parish*, the absence of switching costs in *Data General* rendered any

240. *Id.*

241. *Id.* at 683.

242. *Id.*

243. Data Gen. Corp. v. Grumman Syss. Support Corp., 761 F. Supp. 185, 191-92 (D. Mass. 1991), *aff'd*, No. 93-1637, 1994 U.S. App. LEXIS 25459 (1st Cir. Sept. 14, 1994).

244. *See supra* note 33 and accompanying text.

245. Actually, the ISOs suggested that MV/ADEX was essential to service Data General computers, or at least that computer schematics essential to developing alternatives to MV/ADEX had also been withheld from them, *see Data Gen.*, 761 F. Supp. at 191-92 but the ISOs eventually developed diagnostic programs of their own, Brief of Plaintiff-Appellee Data General Corp. at 28, *Data Gen.*, No. 93-1637, 1994 U.S. App. LEXIS 25459. *Cf.* Berkey Photo v. Eastman Kodak Co., 603 F.2d 263, 279-85 (2d Cir. 1979) (holding that Kodak, when introducing a new film format, had no obligation to disclose, before its introduction, details of the new format to competing camera makers, even though camera makers needed format information to begin the design and manufacture of new cameras), *cert. denied*, 444 U.S. 1093 (1980).

246. *See supra* text accompanying note 27.

information costs harmless. The uncertainty of the comparative costs of hardware maintenance received from Data General and that received from ISOs might have been as great as the analogous difference in Kodak, but Data General computer users were not required to make an irrevocable purchasing decision in the face of that uncertainty.[247]

2. Nonprice Vertical Restraints

Some of the considerations relevant to tying cases are also applicable to cases involving other nonprice vertical restraints. The fundamental feature of both tie-ins and other vertical restraints is the seller's definition of the manner in which its products will be sold to customers. In tying cases, the seller accomplishes this by requiring the buyer to purchase a particular brand (usually the seller's own) of some second product, thus producing a two-product combination. With nonprice vertical restraints, the seller's approach is less direct: The seller imposes on its dealers certain restraints (e.g., as to the number of dealers in a particular geographic area) in the expectation[248] that the dealers will then provide to buyers certain benefits (e.g., better service) that will in turn make the seller's product more attractive.[249] Thus, the seller attempts to define its product to include (at least the option of)[250] the extra benefits that the restraints induce the dealers to provide.

Broadly speaking, both kinds of cases reduce competition at the aftermarket or dealer level, but both are said by their defenders to

247. A separate issue might have been uncertainty regarding Data General's policy regarding the licensing of MV/ADEX. However, there was no allegation that Data General had misled buyers of its computers to think that they would be able to use MV/ADEX with ISO service. Even if Data General *had* previously licensed MV/ADEX to ISOs, and customers had relied on that policy in buying Data General equipment, a change in policy to discontinue that licensing would not have imposed information costs of the kind discussed in this Article. The possibility of the loss of MV/ADEX could have been anticipated, given Data General's control over the program, and if its use was important to consumers, they could have contracted for it. *See supra* text accompanying notes 78-81.

248. Vertical restraints present an enforcement problem. The theory usually applied to explain how these restraints provide improved service is that by reducing inter-dealer competition they provide the dealer with an extra rate of return that the dealer would prefer to continue receiving. *See* Benjamin Klein & Kevin M. Murphy, *Vertical Restraints as Contract Enforcement Mechanisms*, 31 J.L. & ECON. 265, 265-66 (1988). That return is the manufacturer's incentive to the dealer to provide improved service. However, the dealer would prefer to have the extra return without providing the improved service, so the manufacturer must monitor to ensure that the services are provided. *Id.* at 277-79.

249. *See, e.g.*, Continental T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 38-39 (1977).

250. The buyer, of course, need not use any of the improved services provided by the dealer.

increase competition at the manufacturer level.[251] In both cases, the restrictions are justified on the ground that they are needed to prevent free-riding—by aftermarket suppliers in tying cases,[252] and by dealers that do not provide desired services in vertical restraint cases.[253] Also in both cases, there are information-cost problems, in that consumers may be forced to pay higher prices due to the restrictions imposed, despite the consumers' inability to determine whether those higher prices will provide them with compensating benefits.

Nonprice vertical restraints do not generally present a problem of information-based market power, however, because they usually do not create switching costs. There is typically nothing to prevent a buyer, after purchase, from seeking aftermarket services either from a non-dealer or from a dealer who does not conform to the manufacturer's requirement.[254] So long as such switching is possible, the buyer need not continue to pay for services she does not find valuable, and the seller will not be able to extract supracompetitive prices.

In some circumstances, though, nonprice restraints can impose both information and switching costs. If, for example, a manufacturer

251. *See Sylvania*, 433 U.S. at 54-55. The defendant in *Kodak* relied heavily (but unsuccessfully) on *Sylvania* in defending its own tying practice. *See* Eastman Kodak Co. v. Image Technical Servs., Inc., 112 S. Ct. 2072, 2084 n.18 (1992) (citing Kodak's reliance on *Sylvania*).

252. *Kodak*, 112 S. Ct. at 2092.

253. *Sylvania*, 433 U.S. at 55.

254. For that very reason, dealers subject to vertical restraints usually extract the price premium necessitated by the restraints in the primary market, so that consumers cannot avoid it. This is true, for example, of stereo equipment, where "audiophile" brands sold by a limited number of approved dealers must be sold at prices high enough to cover those dealers' customer services because buyers, if they choose, can easily go to other, less-expensive repair shops for service.

In general, the imposition of the premium at the time of the initial purchase, rather than in the service aftermarket, would reduce information costs, regardless of whether switching costs were present. Professor Grimes, however, suggests that this sort of arrangement could impose other costs on consumers by creating incentives for dealers to promote inferior goods. *See* Warren S. Grimes, *Spiff, Polish, and Consumer Demand Quality: Vertical Price Restraints Revisited*, 80 CAL. L. REV. 817, 825-40 (1992) (discussing price restraints, but with reasoning also applicable to nonprice restraints). Consumers might therefore be convinced to make purchases that, though at known prices, would be of unexpectedly low quality. *Id.* at 825-28. This situation could create information costs, because consumers would suffer from the low-quality goods promoted by the dealers. It is important to note, however, that this would not be a problem derived from the structure of the market, as are the information-cost problems discussed in this Article; it would instead be a simple consumer-protection problem. *Cf. infra* part V.C.1 (discussing information problems not created by ties). Professor Grimes recognizes this but argues that the antitrust laws are nevertheless an efficient means of addressing the problem. Grimes, *supra*, at 837-40. That is perhaps so, but the arguments set forth in this Article need not rely on any such pragmatic considerations: They fit squarely within the sort of market problems at which the antitrust laws are directed.

refused to provide replacement parts to dealers who did not meet its requirements, the restraint could present competitive dangers. Such a situation would present conditions exactly analogous to *Kodak*, except that the high-priced service—required if the buyer wanted to obtain parts—would come from a group of dealers controlled by the seller, rather than only from the seller itself. A similar situation was presented in *In re General Motors Corp.*[255] In that case, the Federal Trade Commission challenged a policy of General Motors under which it distributed body "crash" parts only to its franchised dealers, who charged considerable markups when reselling those parts to independent body shops.[256] General Motors customers had no choice but to pay the high prices created by this policy, either directly through high-priced dealer service or indirectly through the high parts prices to independent shops, despite the fact that General Motors did not even claim that the policy increased quality and stated instead that it had instituted the policy for administrative convenience.[257] Despite what it called "a troubling degree of injury to competition," the Commission excused General Motors's practice on the basis of its business justification of administrative savings.[258] If those savings reduced consumers' overall costs, the decision was no doubt correct, but there are certainly other possibilities.[259] The most relevant here is that the policy might have allowed General Motors to charge a lower price for cars while maintaining its profit level by allowing its dealers less return on car sales and compensating them through higher returns on body shop parts and services. To the extent that consumers could not obtain information regarding the higher-priced body repair services to which they might be subject, the policy would have created information costs; consumers would have been induced to purchase General Motors cars by their low initial prices, but then would have been subjected to supracompetitive aftermarket body-shop prices.[260] The com-

255. 99 F.T.C. 464 (1982). *General Motors* might perhaps be thought of not as a vertical restraint case, but as one involving a refusal to deal or some other similarly defined practice. However, it clearly is of the nature of a vertical restraint when looked at as an insistence that its crash part dealers also provide the other services of a franchised dealer. To paraphrase *Sylvania*, the policy thus qualifies as a practice intended "to reduce but not to eliminate competition among [General Motors's] retailers through the adoption of a franchise system." *Sylvania*, 433 U.S. at 46.

256. *General Motors*, 99 F.T.C. at 554.

257. *Id.* at 606.

258. *Id.* at 610.

259. Commissioner Pertschuk dissented from the Commission's opinion, arguing that General Motors had not met its burden of showing the legitimacy of its business justification. *Id.* at 615-18 (Pertschuk, Comm'r, dissenting).

260. It actually seems unlikely that *General Motors* would have created a significant information-cost problem, both because consumers could probably have informed them-

bination of these information costs and the cost to car owners of switching to another car could then have created market power for General Motors in much the same way as market power was created in *Kodak*.[261]

C. Tying and the Creation of Information Costs

As Justice Scalia pointed out in his *Kodak* dissent, the circumstances in which a buyer is unexpectedly locked in to the products or services of a particular seller are far broader than aftermarket tying.[262] In most of those circumstances, however, the lock-in is not imposed, as it was in *Kodak*, by a tie that at the same time defines a product in such a way as to create information costs. Justice Scalia made no attempt to show that the circumstances he described fit this mold, and in fact they did not. The first section below discusses the quite different circumstances cited by Justice Scalia, where the information costs to which a buyer is subject would be present regardless of how the product is defined; in these circumstances, a tie does not worsen the buyer's position, and therefore does not create market power. The subsequent section discusses the situation in which a seller *does* define its product with a tie that has informational effects, but the seller takes active steps to reduce information costs.

1. Tying with Pre-existing Information Costs

The examples of "circumstantial" lock-in power that Justice Scalia cited are unlike *Kodak* in that they do not involve products

selves regarding the costs of body repair services and because the cost differences between such repair services would be unlikely, for a typical buyer, to approach five percent of an automobile's total price. *See supra* text accompanying notes 148-53.

261. A rationale that could be offered to reject information-based liability in *General Motors* was described in *Kodak.* The Court in *Kodak* rejected Kodak's analogy between its tying practice and nonprice vertical restraints, because, it said, Kodak itself competed with the dealers that were disadvantaged by the tie, in contrast to a vertical restraint case (like *General Motors*), in which restraints are imposed at the dealer level, where the manufacturer generally does not compete. Eastman Kodak Co. v. Image Technical Servs., Inc., 112 S. Ct. 2072, 2084 n.18 (1992). This is not a relevant distinction, however. The fact that General Motors did not compete with either its franchised dealers or with independent body shops did not mean that it could not have profited from its restrictive parts sales policy. As the text describes, the higher prices charged by General Motors dealers for parts sold to independent body shops might have allowed the dealers to charge supracompetitive prices for their body repair services. That, in turn, would have resulted in excess profits, some of which the dealer could have returned to General Motors, in effect as an incentive to continue the parts sales policy. *Cf. supra* note 83 (noting similar phenomena in the related area of long-term contracts).

262. *See infra* notes 263-65 and accompanying text.

specifically defined in such a way that their valuation is difficult.[263] Representative is his reference to "the leverage held by an airplane manufacturer over an airline that has 'standardized' its fleet around the manufacturer's models."[264] In this and Justice Scalia's other examples,[265] the sellers' ability to exploit buyers arises—as it does in *Kodak*—from the buyers' investments in the sellers' products, but—unlike *Kodak*—the buyers' investment decisions are not made more difficult by the sellers' definitions of their products. Justice Scalia's airline example, for instance, is roughly equivalent to an exploitation by Kodak of its equipment owners through a simple parts price increase, not through a tie of service to parts and equipment. The former method exploits buyers in a straightforward way, apparent to and assessable by buyers; the latter obscures the exploitation behind the difficulty of calculating service costs.

The information-based distinction here is critical. In the absence of traditional non-information-based market power, an undisguised exploitation of buyers is not possible. Only if the exploitation is made difficult to anticipate, so that the buyer makes her purchase and is locked in to supracompetitive prices before she can determine that the prices *are* supracompetitive, can a seller create market power through information. This point distinguishes *Kodak* not only from Justice Scalia's examples, but also from several cases that have been cited in arguing that *Kodak* was in error.[266]

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263. Actually, one of Justice Scalia's examples, "the leverage held by the swimming pool contractor when he discovers a 5-ton boulder in his customer's backyard and demands an additional sum of money to remove it," *Kodak*, 112 S. Ct. at 2098 (Scalia, J., dissenting), does not involve lock-in at all. Although the swimming pool example presents information costs (the inability to anticipate the presence of the boulder), the customer could presumably freely switch to another contractor at the time the boulder is discovered. (If the contract provided for a penalty if the customer switched, there might be antitrust implications. *See supra* note 83.). Justice Scalia might respond that the swimming-pool customer would incur switching costs if she chose to abandon the pool entirely, but that goes further than the arguments presented in *Kodak*. The argument of the ISOs in *Kodak* was that Kodak equipment owners would incur costs in switching from Kodak copiers to other brands with which they could use ISO service; they did not claim that the costs that copier owners would sacrifice if they abandoned copiers altogether had antitrust significance.

264. *Kodak*, 112 S. Ct. at 2098 (Scalia, J., dissenting).

265. The other examples are "the leverage held by a drill press manufacturer whose customers have built their production lines around the manufacturer's particular style of drill press; the leverage held by an insurance company over its independent sales force that has invested in company-specific paraphernalia; or the leverage held by a mobile home park owner over his tenants, who are unable to transfer their homes to a different park except at great expense." *Id.* (Scalia, J., dissenting).

266. The two cases discussed below, Parts & Elec. Motors, Inc. v. Sterling Elec., Inc., 866 F.2d 228 (7th Cir. 1988), *cert. denied*, 493 U.S. 847 (1989), and Town Sound & Custom Tops, Inc. v. Chrysler Motors Corp., 959 F.2d 468 (3d Cir. 1992) (en banc), *cert. denied*, 113 S. Ct. 196 (1992), were both cited by Justice Scalia in his *Kodak* dissent. *See Kodak*, 112 S.

First among these cases is *Parts & Electric Motors, Inc. v. Sterling Electric, Inc.*[267] In his *Kodak* dissent, Justice Scalia cited Judge Posner's dissenting opinion in *Sterling*.[268] In that case, Sterling, a motor manufacturer, instituted a new policy that required dealers that carried its parts to also purchase a certain number of its motors.[269] This policy was, for both the dealers and Sterling motor owners, an unanticipated aftermarket tie. However, from the perspective of the dealers, one of which brought the claim, the tie imposed no information costs at all. At no point was a dealer required to make a purchasing decision that was made more difficult by the tie. Before the tie, the dealer was able to decide independently whether to sell Sterling parts and motors, based on its expected profits from each; after the tie, although it was required to decide whether to carry both parts and motors or to carry neither, it needed only to assess its collective profits from both. Therefore, the information needed for the post-tie decision was no more difficult to obtain than was the information for the pre-tie decisions, and the tie created no information-cost problem.

As a closer analogy to *Kodak*, one can also consider the *Sterling* tie from the perspective of Sterling motor owners. Although the tie, by imposing a restraint on parts dealers, no doubt had the indirect effect of raising parts prices, from the perspective of motor owners that effect was no different from a unilateral parts price increase imposed by the dealers or by Sterling itself. As such, unlike the *Kodak* tie, Sterling's tie did not make the calculation of overall lifecycle cost more difficult. In fact, the calculation process before the tie and after it were exactly the same—only the numbers (parts prices) in the calculation differed. Hence, the Sterling tie also did not create information-based market power over Sterling motor owners.

Despite the two cases' differences, *Sterling* resembled *Kodak* in that it did impose an unexpected aftermarket tie. The other case to be discussed here did not, though the plaintiff claimed that the defendant's tie made its purchasing decisions more difficult. In *Town Sound & Custom Tops, Inc. v. Chrysler Motors Corp.*[270] the plaintiff argued that Chrysler's inclusion of an automobile radio as standard equip-

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Ct. at 2098, 2100 (citing *Sterling*), 2097, 2098 (citing *Town Sound*) (Scalia, J., dissenting). Professors Areeda and Hovenkamp also quote extensively from Judge Posner's dissenting opinion in *Sterling* in their critique of *Kodak*. *See* AREEDA & HOVENKAMP, *supra* note 4, ¶ 1709.2(f).

267. 866 F.2d 228 (7th Cir. 1988).

268. *See Kodak*, 112 S. Ct. at 2098 (Scalia, J., dissenting) (citing *Sterling*, 866 F.2d at 236 (Posner, J., dissenting).

269. *Sterling*, 866 F.2d at 229.

270. 959 F.2d 468 (3d Cir. 1992) (en banc), *cert. denied*, 113 S. Ct. 196 (1992).

ment in its cars was an illegal tie because it made it more difficult for consumers "to evaluate the true cost of the car and the sound system apart from the package."[271] This claim was rightly rejected by the Third Circuit, though, because *Town Sound* consumers knew exactly what they were paying for the car-and-radio combination.[272] There was therefore no reason why they could not easily compare their possible Chrysler purchases with other car-and-radio (or car-alone[273]) purchases. As with *Sterling*'s requirement that dealers make a single decision whether to sell both parts and motors, there was no creation of information costs, and hence no information-based market power.[274]

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271. *Town Sound*, 959 F.2d at 491. This was an argument that the Third Circuit apparently pursued more vigorously than did the plaintiff itself. *See id.* at 490 (introducing the argument with the statement that "[t]he plaintiff's theory of harm that troubles us most is one that they have pressed only weakly since filing their complaint").

272. The Third Circuit reached a similar conclusion, stating that the facts in *Town Sound* did not present a problem of information-based market power, because Chrysler buyers "know what they need to know to evaluate how good a deal they are getting for what they are buying." *Id.* at 491 (footnote omitted). The court of appeals also noted that

> car buyers know from the sticker price or the salesperson exactly what price they have to pay for what Chrysler car—for the package, including vehicle body, options, and autosound system. . . . We do not see why the buyer should care whether the underlying prices for a $10,000 car package are $500 for the sound system and $9,500 for the rest of the car, or $1,000 for the sound system and $9,000 for the rest of the car. For antitrust purposes, it makes no difference.

Id.

273. Even if the buyer would have preferred to buy no radio, there was still no question as to how much she would have had to pay for the car with its radio, though the arrangement would obviously have been less desirable for her. This is actually something of an oversimplification, in that if the buyer was uncertain regarding how much the radio would have been worth to her (at resale, for example), the tie of the radio to the car would have forced her to make that determination in order to reach a fully informed decisioin.

Although this seems like a minor concern in the case of a car, because the radio is of considerably less value than the car, it might have presented a more significant problem in *Sterling*. In that case, a dealer that wished to carry only Sterling parts (and not Sterling Motors) would have been forced by the parts-motors tie to determine its expected profits from motors as well as from parts to determine whether carrying both would be profitable. That might in fact have made the dealer's purchasing decision more difficult, and might therefore have given Sterling market power.

274. Somewhat similar was Photovest Corp. v. Fotomat Corp., 606 F.2d 704 (7th Cir. 1979), *cert. denied*, 445 U.S. 917 (1980). The plaintiff in *Photovest* was a Fotomat franchisee whose franchise agreement required that it purchase all its photo-processing services from Fotomat, which represented that it would provide the services at cost, but in fact sold them at a profit. *Id.* at 716, 719-20. The plaintiff's claim alleged that Fotomat's deception induced it to continue buying Fotomat photo-processing services when it would not have done so with accurate information, and that the deception therefore made the tie illegal. *Id.* at 723. However, although the plaintiff in *Photovest* perhaps paid more than it would have if Fotomat had lived up to its bargain, there was no allegation that the plaintiff was unable to ascertain exactly how much it was paying. The plaintiff's lack of information therefore did not make it more difficult for it to calculate its costs.

2. Tying and the Reduction of Information Costs

Sterling and *Town Sound* suggest that so long as buyers of tied products are aware of the overall costs that they will pay, the ties do not create information problems. That is largely correct, even for aftermarket ties. For example, a seller seeking to impose an aftermarket parts-and-service tie similar to that in *Kodak* could reduce the uncertainty associated with that tie considerably by charging a fixed overall parts-and-service price, as with a long-term warranty. Some uncertainty would still remain regarding service quality, and to that extent market power would still be possible,[275] but the reduction in uncertainty provided by the fixed price would probably reduce overall information costs below the market-power threshold. Moreover, a fixed price could indirectly reduce even quality uncertainty. That is so because, with a fixed service price, it is in the seller's, as well as the buyer's, interest to provide high-quality service, so as to minimize the time and cost of service calls. The seller's willingness to provide service for a fixed price therefore in itself conveys quality information to the buyer.[276] Because the seller will rationally assume the risk of providing fixed-price service only if quality is high, so that the seller will profit from providing the service, the consumer can rationally rely on the seller's offer as a signal of quality.[277] The fixed-price tie of a warranty therefore provides a means for a seller to impose an aftermarket tie without making the consumer's decision-making process more difficult by creating information costs.

Moreover, a seller need not go so far as to fix future prices to inform its buyers; it can instead simply provide estimates of future costs. Although I am unaware of any case in which that has been done for a simple tying arrangement, it is an approach provided for by statute in the closely related area of franchise agreements. Franchise agreements, like aftermarket ties, generally require the continued long-term purchase of seller-selected goods or services as a condition

The Seventh Circuit rejected the *Fotomat* plaintiff's claims on somewhat similar grounds. It said that the plaintiff's tying argument could only succeed if Fotomat had used its market power in the tying market, Fotomat's trademarked franchise, to coerce the plaintiff to purchase its photo-processing services. *Id.* at 723. That, the court said, Fotomat did not do. The plaintiff purchased Fotomat's services because it believed (albeit due to Fotomat's misrepresentations) that they were the least expensive such services available, not because it was forced to do so to obtain or retain the Fotomat franchise. *Id.*

275. For example, the information costs represented in Table 1, *see supra* text accompanying note 157, which do present a market-power problem, arise despite manufacturer service costs that are fixed—or more precisely, that increase at a fixed rate.

276. *See generally* Grossman, *supra* note 67 (discussing role of product warranties).

277. *See supra* note 216.

of the buyer's use of the seller's product, though in franchise arrangements the tying product is usually the franchise trademark itself, rather than a durable good.[278] The franchise tie-in requirement is generally justified on the ground that uniformity is needed to maintain the value of the franchise trademark,[279] but the true value of the required products to the franchisee is likely to be somewhat uncertain, as are their costs over time. Thus, it is possible that, as with other ties, a franchise could create information costs that distorted consumer purchasing decisions.[280] The franchise claim most analogous to *Ko-*

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278. See, for example, the definitions of franchises in the Federal Trade Commission's Disclosure Requirements and Prohibitions Concerning Franchising and Business Opportunity Ventures, 16 C.F.R. § 436 (1993). The most relevant of these definitions, for present purposes, is the following:

> The term *franchise* means any continuing commercial relationship created by any arrangement or arrangements whereby:
>
> (1)(i)(A) a person (hereinafter "franchisee") offers, sells, or distributes to any person other than a "franchisor" (as hereinafter defined), goods, commodities, or services which are:
>
> (*1*) Identified by a trademark, service mark, trade name, advertising or other commercial symbol designating another person (hereinafter "franchisor"); or
>
> (*2*) Indirectly or directly required or advised to meet the quality standards prescribed by another person (hereinafter "franchisor") where the franchisee operates under a name using the trademark, service mark, trade name, advertising or other commercial symbol designating the franchisor; and
>
> (B)(*1*) The franchisor exerts or has authority to exert a significant degree of control over the franchisee's method of operation, including but not limited to, the franchisee's business organization, promotional activities, management, marketing plan or business affairs; or
>
> (*2*) The franchisor gives significant assistance to the franchisee in the latter's method of operation, including, but not limited to, the franchisee's business organization, management, marketing plan, promotional activities, or business affairs; . . .
>
> and;
>
> (2) The franchisee is required as a condition of obtaining or commencing the franchise operation to make a payment or a commitment to pay to the franchisor, or to a person affiliated with the franchisor.

16 C.F.R. § 436.2(a) (1993).

279. Benjamin Klein & Lester F. Saft, *The Law and Economics of Franchise Tying Contracts*, 28 J.L. & ECON. 345, 349-51 (1985).

280. On this point, one franchise case contained the following comments:

> The franchisees' apparent willingness to pay the ultimate cost of the arrangement is clouded by the fact that they may well have been unaware of what that cost would come to in practice. Had the full amount of the over-charge on the tied items been openly specified as the cost of the tying items, agreement might not have been forthcoming.

Siegel v. Chicken Delight, Inc., 448 F.2d 43, 52-53 (9th Cir. 1971), *cert. denied*, 405 U.S. 955 (1972).

dak[281] would be one in which a franchisee claimed that she entered into the franchise agreement, and agreed to purchase the required tied products, at least in part because she was unable to determine how expensive the package would be.[282]

However, as pointed out by Professor Hay in considering the implications of *Kodak* for franchising, federal law requires that potential franchisees be given information regarding the costs of a franchise.[283] The Federal Trade Commission has promulgated rules that require the disclosure of a great deal of information regarding the franchise's financial performance.[284] The rules thus at least attempt to provide exactly the information needed by a buyer to make an informed choice regarding the product—they attempt to provide exactly the information that was lacking in *Kodak.* The buyer would therefore suffer as experience costs only those expenses that were not anticipated by the required disclosure,[285] and those unanticipated expenses might not be sufficient to make an information-based claim viable.[286] A similar ap-

281. At least one commentator has expressed concern regarding the application of *Kodak* to franchise agreements. *See* Hay, *supra* note 4.

282. Following the analysis of this Article, a franchisee bringing a *Kodak*-based claim would have to show that there were unexpected expenses of a particular product or products within her franchise package that could have been avoided by using an alternative—i.e., that there were experience costs—and that those expenses were sufficient to create the market power that forced her to make the purchase. *See supra* part IV.A.1-2. Switching costs would be present, as the result of the considerable initial investment necessary to acquire a franchise.

283. Hay, *supra* note 4, at 188.

284. *See* Federal Trade Commission, Disclosure Requirements and Prohibitions Concerning Franchising and Business Opportunity Ventures, 16 C.F.R. § 436 (1993).

285. Because the availability of this information makes possible low-cost search, it eliminates much of the need to obtain information through experience. *See supra* note 149.

286. There is also another, more fundamental factor that might weaken an information-based franchise tying claim. A franchisee's claim would be based on the franchisor's definition of its product (by requiring franchisees to purchase particular goods), but it is also the franchisor's definition of the product that provides the uniformity that allows the franchise trademark's value to be created and maintained. That fact makes it difficult for the franchisee to argue that it was uncertainty regarding the value of the tied product that caused her to make the purchase. It is perhaps more likely that it was the franchisor's particular definition of the product, despite its uncertainty, that motivated the purchase.

This is, of course, the basic quality justification discussed *supra* part IV.B.4. The justification is more plausible in the franchise context than in most tying arrangements, *see* Klein & Saft, *supra* note 279, at 346-48, but Kodak could also have argued that buyers chose its equipment and accepted the necessity of using Kodak service not because of market power derived from uncertainty regarding that service, but because of Kodak's reputation for long-term product quality, quality that it could maintain only by continuing to require use of its service. To some extent, the validity of such a claim will never be an entirely resolvable problem, due to the difficulty of determining product quality with and without the tie. Nevertheless, there are some guidelines that can be used to evaluate claims of quality control. One consideration is who stands to lose the most from low quality. In a case like *Kodak*, where the buyer has purchased a product for its own use, it is the proach could, of course, be adopted by a non-franchise seller that wanted to impose a tie: By providing information sufficient to estimate the costs of the tie, the seller could foreclose the possibility of a *Kodak*-like antitrust action.[287]

D. Lee v. Life Insurance Co.*: Baseless* Kodak *Claims*

As the two preceding sections showed, the presence of either information or switching costs alone is not sufficient to create information-based market power. One would think, therefore, that plaintiffs would not bring *Kodak*-like claims where neither information *nor* switching costs were present. However, plaintiffs did exactly that in a recent First Circuit case, *Lee v. Life Insurance Co. of North America*.[288] The plaintiffs, students at the University of Rhode Island (URI), challenged URI's requirement that its students pay a fee for the right to use URI's health clinic and that they be covered by health insurance, for which URI provided a particularly economical program.[289] The students claimed that, after they entered URI, they were locked in to continued enrollment[290] and that information costs were present because they could not "know or predict their future [clinic fees and insurance premiums] with any precision."[291]

The First Circuit easily rejected the students' information and switching costs claims. The court said that the students were aware of the clinic and insurance charges at the time of their enrollment at URI

buyer who will suffer immediately from poor equipment performance, so it is difficult to see why the determination of what is necessary to maintain equipment quality should be left to the seller. In the franchise situation, on the other hand, skimping on quality by the franchisee will (in the short-term, at least) save the franchisee money; the costs of lowered quality will be imposed on the eventual consumer of the franchised product. It is possible that in the long term the franchisee will also suffer from a loss of repeat customers, but that will depend on the extent to which the franchisee can free-ride on the reputation of the franchisor (and of other franchisees). *See* Klein & Saft, *supra* note 279, at 349-51. At best, any loss of quality by the franchisee will be felt only indirectly. Hence, the tying arrangements of a franchisor seem more reasonably justified by quality-control claims than do those of Kodak.

287. It does not seem appropriate, however, to *require* a seller in Kodak's situation to remedy the information deficiencies of its customers. (In fact, the relevant information may not be available, even to the seller. *See supra* note 100.). *See* Craswell, *supra* note 80, at 691-92 (discussing the possibility of disclosure requirement). Those deficiencies are to a large extent an unavoidable characteristic of aftermarkets, and this Article proposes only that the seller should not be permitted to exploit them through a tie. *See supra* note 169.

288. 23 F.3d 14 (1st Cir. 1994), *petition for cert. filed,* 54 U.S.L.W. 3192 (U.S. Sept. 27, 1994) (No. 94-468).

289. *Id.* at 15. URI's health insurance program was designed to cover only those costs that its students' clinic fees did not cover. *Id.*

290. *Id.* at 18.

291. *Id.* at 19.

and that the charges were "subject to historically predictable annual increases."[292] Therefore, it said, the plaintiffs could raise no inference that "the health-care and insurance-cost information . . . [was] *either difficult or expensive to obtain or correlate.*"[293] As for switching costs, the court said that "the 'college credit' value of the first semester [was] neither nontransferable nor without economic or educational value in the future even if the student [did] not remain at URI."[294] Because it rejected both the information-cost and switching-cost arguments, the court rejected the students' *Kodak* claims.

Some commentators will no doubt point to *Lee* and its plaintiffs' strained arguments as proof that *Kodak* has provided new opportunity for groundless claims.[295] But the case actually shows that it is easy to dispose of such groundless claims. *Lee* was decided on a motion to dismiss under Rule 12(b)(6) of the Federal Rules of Civil Procedure after "minimal discovery,"[296] which suggests that an information-cost claim will not necessarily require extensive (and expensive) discovery if the plaintiff can point to no plausible sources of information and switching costs.[297] As time passes, and *Kodak* becomes better understood, such cases will no doubt be brought only rarely, if at all. Moreover, under the approach of this Article, even *Lee* might not have been brought. Recall that the approach advocated here requires a showing of information and switching costs that meet a market-power threshold when compared to overall costs in the primary market—equipment in *Kodak* and URI educational services in *Lee*. The plaintiffs in *Lee* acknowledged that this condition was not met, stating that "the prices charged for health clinic services and insurance premiums [were] too insignificant in relation to tuition and other university-education costs to be considered a meaningful factor in determining whether potential applicants for admission will attend URI or some other university."[298] That statement was an admission that the *Lee* plaintiffs' claim could not meet the market-power test proposed here.

292. *Id.*

293. *Id.* (emphasis in original).

294. *Id.* at 20.

295. *See supra* note 7.

296. *Lee*, 23 F.3d at 15. Given the court's discussion of factual matters, the dismissal was treated more as a summary judgment motion.

297. *Lee* placed the burden of *alleging* a plausible source of information costs on the plaintiffs. *Id.* at 18-19. Because of the posture of the case, it, like *Kodak*, said nothing about which party had the burden of proof on the issue.

298. *Id.* at 18.

VI. Conclusion

This Article has provided a detailed analysis of *Eastman Kodak Co. v. Image Technical Services, Inc.*[299] The view of the case presented here concurs with the result reached by the majority in *Kodak*, but differs in some respects with its reasoning. The thesis of the Article is that the combination of information costs and switching costs can create market power of antitrust significance. The Article describes the mechanisms by which information deficiencies can create such power, and it outlines a method of calculating the degree of power in cases like *Kodak*. Such a calculation presents no insuperable difficulties, and it provides a framework for deciding these cases that the Court's opinion did not supply.

Moving beyond the specifics of *Kodak*, the Article discusses more generally the ability of sellers to define their products in such a way as to create market power. This ability is made possible by a close interrelationship between a seller's definition of its product and the information available regarding that product, a relationship that is present in a variety of cases in addition to those involving tying arrangements. The interaction between product definition and market information can generate market power that is, from an economic point of view, competitively significant and a valid subject of antitrust concern.

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299. 112 S. Ct. 2072 (1992).